Lesson 5 - Introduction To Nutritional Science

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1. What Constitutes Nutrition (Definitions And Concepts)

Conventional attitudes regard nutrition as being almost exclusively involved with foods and feeding, but this is only one facet of the nutritional scene (albeit an important one). At the outset it is prudent to define what nutrition is and, in view of the many misconceptions, what nutrition is not.

1.1 Nutrition Is the Sum of All Processes That Promote Growth and Function

Nutrition does not mean food only. Nutrition is the sum of all the processes that supply, develop and sustain an organism's faculties and functions at the optimal level of existence. In short, nutrition is the total of all that supplies life's needs. It embraces all requirements for perfect health and supplying these requirements constitutes nutrition.

1.2 Nutrition Is Modified By the Entire Spectrum of Life Conditions and Activities

The sum of nutritional processes adds up to our health quotient; that is, our state of health equals the total of the nutritional processes that created it.

Anything that modifies nutrition or the processes of supply and usage also modifies health. Everything we get involved in or do in all spheres of life affects in some way our nutritive disposition, either for the better, for the worse or equivalently.

With respect to foods and feeding, we have specific adaptations for acquiring and processing particular foods to meet our nutritive needs. Anything that changes in the whole process affects our nutrition and, consequently, our health.

Because of its importance, we re-emphasize: Nutrition is largely dependent upon our health and, likewise, our health is dependent on nutrition.

1.3 Nutrition Involves the Processes of Growth, Development, Supply and Invigoration

Dr. Herbert M. Shelton has defined nutrition as follows:

> *Perfect nutrition is dependent on perfect organs, perfect functions and normal health. Each is dependent upon and grows out of the other. All processes and functions are interdependent and interact harmoniously for mutual well-being. They cannot be taken apart and categorized. Every aspect of life is but a part of a unified whole.*
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> *This idea of interdependence and interaction leads to the principle that the appropriate way to recover and develop strength and vigor is through the activities and processes that give rise to growth. We recover arid develop strength and vigor in the same way that we keep well, in the same way that a babe grows into vigor and adulthood. The powers and forces that brought us into being, that sustain us in existence, that cause us to grow through all the phases of life to manhood and womanhood, are sufficient to restore us if health becomes impaired.*

2. Food Is An Element Of Nutrition

As stated earlier, food constitutes only a part of the needs of life. It constitutes some of the raw materials which become part of the overall nutritive processes. When the body receives food, it breaks it down mechanically and chemically into components which can be absorbed and synthesized by the organism into special substances to meet the special needs of the organism.

2.1 Food Is an Inert Substance—Merely Raw Materials

Many people believe that foods have different actions in the body. However, this is erroneous. Foods do not act in the body but are, instead, acted upon by the body. To be appropriated the food must lose all its character. It is mechanically crushed, comminuted and mixed with digestive fluids, then chemically reduced to basic components for absorption, synthesis and use.

Let us again review nutrition as Dr. Shelton has expressed it in yet another definition:

> *Nutrition is a vital process carried on only by a living organism. It is a process of growth, development and invigoration. To eat good food and enough of it, to drink pure water and breathe pure air, in and of themselves, are very desirable, but something more is needed in order to acquire health, strength and vigor. Nutrition is dependent on function. We can have better nutritive function only when we have a capacity for better nutrition.*
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> *Food is of value only in its physiological connections with air, water, sunshine, rest and sleep, exercise or activity, cleanliness and wholesome mental and moral influences—in short, all the natural or normal circumstances which we know to be necessary for the preservation of health.*

What Dr. Shelton is saying is but a reiteration of what has been emphasized here, that the better your

health the better will be your nutrition and the better your nutrition the better will be your health. Every factor and condition of life must be supplied optimally to assure best health.

Again, to highlight its importance, we repeat that food does not use the body or do anything to the body. The body does unto the food and uses it. In creating foods, plant life designed them to be utilized by animals in exchange for a service to the plant. This is symbiosis. Human service to plants is the incidental broadcast of their seeds. Was ever a reward so great for such a small service?

As a nutritionist you must ever keep this in mind: Foods do nothing in the body. They have no powers of cleansing, healing or anything else. Foods have no will or purposes of their own. To be consumed and used is their inherent design.

2.2 Food Use Is Subject to the Body's Ability to Process, Appropriate, Assimilate, Metabolize and Eliminate

A body that is impaired is unable to properly process and use food. To the extent that the impairment causes withdrawal of functional energies from digestive processes, the body is unable to be fed. When the body's nutritive functions are in any way impaired, and this will usually be evidenced by depressed or lost appetite, make this a standing rule: do not partake of food. Guide clients away from food. Missing a meal or a few meals is most constructive.

If the body is in any abnormal condition, food should not be taken or given. In fever, pain, emotional upset, fatigue, worry, sleeplessness and many other conditions, the body is unable to muster the needed energies for the processes of digestion, appropriation, and assimilation. In such conditions the body does not create the condition of hunger or give rise to appetency.

2.3 Food Is But One of Many Needs in Nutrition

Our capacity to receive, process and assimilate food is necessary to the nutritive process. In the absence of functional energies in these areas, feeding results in lowered body energies and the waste of foodstuffs. It is passed on to the bowels and the body is worse off for it.

To appropriately receive, digest and assimilate foods, other physiological needs must also be present. Oxygen, water, digestive fluids, nerve energy and a multitude of other factors and influences must favorably coalesce to effect these processes. Should any impairment in the nutritive faculties exist, the interference may prove insurmountable and result in indigestion.

This leads to this inescapable conclusion which you must ever bear in mind: proper nutrition is dependent upon and is affected by the entire spectrum of the organism's activities and conditions.

3. Physiological Criteria Foods Must Meet

Every creature in nature has become adapted to securing and nourishing itself on particular foods. All natural equipment and faculties dispose to this specialization. Humans are not exceptions to this rule. Because we have developed tools using our capabilities and can supply ourselves with an abundance of anything on earth as food does not in any way alter our physiological adaptations and specializations.

Every creature has basic nutritive requirements. Our biology books detail these rather impartially and correctly for animals. But the books and teachings that concern human nutrition do not deal impartially

with the subject. Our educational establishment is the captive of our mammoth industrial complex. This means they prostitute their teachings to cater to the needs of those whose grants support them. Thus, human nutrition as taught in our society is dictated, not by physiological faculties and needs, but by the wishes of those food industries that stand to gain from the miseducation that panders to their products.

3.1 Food Adaptations of Various Species

The food specializations of various species are categorized by general designation. Some of these categories are as follows:

- Herbivores (grass and vegetable eaters such as cattle, sheep, goats, deer, horses, rabbits, etc.)
- Graminivores (animals that subsist on grains—birds primarily)
- Insectivores (bats, birds and creatures that subsist on insects)
- Frugivores (fruit-eating animals—primates and anthropoids, humans, orangutans, apes, monkeys, etc.)
- Carnivores (animals that live on the flesh, bone, offal, etc. of other animals—cats, dogs, lions, tigers, wolves, buzzards, hawks, eagles, jackals, etc.)
- Omnivores (animals such as swine (pigs, hogs) that live off a mixed diet of fruits, vegetables, grains, flesh, offal, etc.)

As you're aware, the bee lives on the nectar of blossoms and flowers and the pollen with which it becomes incidentally contaminated. All the bee's equipment befit it to seek out flowers, land upon or hover over them, withdraw nectar the flower has secreted especially for the bee, and to return to its hive where it shares its harvest with other bees, the surplus being stored as honey. The bee is excellently equipped to meet its needs amply in this manner. Humans cannot meet their needs this way. Neither can cattle, horses or pigs. They're equipped in their own special ways to meet the needs of their adaptations.

As a sidelight on the symbiotic relationship of life, we might note that the flower created the nectar for the bee in exchange for a service. The flower or blossom is a step in the plant's creation of seeds. Before a seed can be formed, fertilization must take place and to insure this fertilization the bee is enticed by nectar. Incidental to the taking of nectar the bee contaminates itself with pollen. At the next flower the bee contaminates the flower's pistil with this pollen. This incidental fertilization is the service the plant induced the bee to perform with the nectar secretion. Who said plants weren't smart?

3.2 Range of Food Processing Capabilities

Humans are endowed with certain natural capacities and limitations in the acquisition, processing and utilization of foods. Human development (which endowed us with our faculties and capabilities) specialized and restricted our equipment and capabilities for food gathering and processing to certain foods just as in the case of other animals. The faculties of most creatures are developed so as to make disposition of surpluses or to survive scarcities. Surpluses are either stored as reserves or are excreted. Redundancies beyond needs and ability to readily excrete founder humans and other animals that are so unwise as to overeat.

In ascertaining the criteria that a food must have to satisfy human needs, we must be cognizant of the capacities and capabilities of the organism as well as the properties of the food.

3.3 Food Adaptations of Humans

Humans are classified as frugivores because they have the equipment to harvest and efficiently process only a class of foods called fruits. Humans are not alone in this class. For millions of years humans subsisted solely, exclusively and only on fruits. That is the way it was expressed by Dr. Alan Walker of Johns Hopkins University, an anthropologist who conducted extensive research into the dietary background of humans. Even though humans have eaten foods outside their dietary adaptations off and

on for perhaps hundreds of thousands of years and have eaten some cooked foods for tens of thousands of years, there has been no physiological change that would justify straying from our natural dietary.

Our adaptations are strictly as fruit-eaters as you will see in subsequent lessons.

3.4 The Dietary Requirements That Determine Our Ideal Foods

Natural foods for humans must satisfy the following criteria and nutrient needs:

Foods Must Be Non-Toxic

First and foremost the food must be toxin-free. None of the compounds and substances in the food should present a digestive problem. The body must have enzymes adapted to handle every substance within the food. Toxic substances are those which the body cannot use as food. Substances that the body cannot use but which it cannot prevent absorption of (as in alcohol, cholesterol, drugs, etc.) are toxic.

Foods Must Be Edible in the Raw State

The food must be edible in its living or raw state as nature delivers it up for us as food. If we cannot eat our fill of a food in its raw state with relish and make a meal of it that meets all or most of our nutrient needs, then it is not a natural food for humans and should be shunned in favor of foods that do.

Foods Must Have Sensory Appeal

Foods of our adaptation have great sensory appeal. They are a delight to the eye, their aromas tantalize the sense of smell and their substance is an unqualified gustatory delight.

Foods Must Be Digested Easily When Eaten Alone or Properly Combined

Foods of human adaptation undergo practically no digestion in the stomach and humans can absorb the chyme and chyle of their natural foods with very little chemical elaboration in the stomach and small intestine.

Foods Must Be Digested Efficiently

While ease of digestion necessarily also implies efficiency of digestion, this entry relates to another aspect of efficiency. That which is eaten represents a certain amount of energy potential. To derive this energy from food, the body must expend energy to obtain it. The ratio of energy obtained relative to energy expenditure determines the ratio of efficiency.

For instance, we spend a mere 30 calories of energy in the process of appropriation, chewing, absorbing, transporting and assimilating 400 calories of watermelon. On the other hand, we may spend 280 calories in the digesting meat to obtain 400 calories. The efficiency with which we handle foods with monosaccharides versus the inefficiency with which we handle protein foods indicates most emphatically the types of food to which we are naturally adapted.

In processing food for use, we expend two kinds of energy. We expend metabolic energy, which is the chemical and mechanical energies expended, and we expend nerve energy. For instance, we use very little nerve energy in digesting watermelon. But, in processing foods to which we are not biologically adapted, an enormous expenditure of nerve energy is occasioned. Meats may cause nervous exhaustion due to the body's frenzied activities in dealing with proteins, uric acids and other toxic substances in them. Though we may feel exhilarated while expending nervous energy just as we feel "a pick-me-up" when taking coffee (which really drains nerve energy), the stimulation occasioned by eating unsuitable foods such as meat is an indication of the inefficiency with which the body handles it.

Foods Must Have Protein Adequacy

Our natural foods must supply us with our protein requirements of about 25 grams daily. The less protein eaten down to the point of adequacy, the better. Protein is taken into the body for replenishing amino acid components needed for a multitude of applications. There are three things you should keep in mind relative to protein digestion:

1. the body can recycle up to two-thirds of its proteinacious wastes to meet its needs;
2. protein digestion requires an expenditure of energy equivalent to about 70% of its total caloric content; and
3. neutralization and elimination of the toxins of protein degeneration (putrefaction) uses up vast amounts of nerve energy which, though stimulating at the time, exhausts and debilitates the body.

We must not feel compelled to eat protein foods as such in order to achieve protein adequacy. Almost every food natural to humans has about 4% protein dry weight, an ample amount to supply our needs. Further, most of our natural foods contain the amino acids we need.

Foods Must Be Adequate in Vitamin Content

Some 30 vitamins have been determined to be needed in various quantities in the human diet. The vitamins must be in the diet in an organic context with other nutrients to be useful.

Foods Must Be Adequate in Mineral Salts

Our only source of the minerals of life is from food. Only in food are they in the organic context which we can use. Under no circumstances can the body make use of inorganic minerals as might be ingested with water, supplements or powdered rock (as with dolomite).

Natural Foods Must Supply Our Needs for Essential Fatty Acids

Those food factors which the body requires but cannot itself synthesize are said to be essential. The essential fatty acids are linoleic, linolenic and arachidonic. Essential fatty acids are unsaturated fats. They occur in practically every fruit, nut, seed and vegetable in ample quantities to supply human needs.

Natural Foods Must Supply Our Needs for Caloric Values

The energy we expend must be derived from our food intake. The foods which most efficiently and easily supply our caloric needs are those with high monosaccharide content. Sweet fruits are at the top of the list in meeting these requisites.

Natural Foods Are Water-Sufficient to Meet Our Needs in Most Cases

Foods to which we are biologically adapted normally meet all our water needs. This is obvious, for we have no water-drinking faculties other than suction which is necessary for swallowing food. Fruitarian species normally do not drink water.

Natural Foods Are Alkaline in Metabolic Reaction

We require foods that are alkaline- or base-forming when metabolized. Almost every food of our adaptation is base-forming, even if it has an acid pH in its natural state. Should we eat any acid-forming foods, such as nuts, they should be offset at the same meal with alkaline-forming foods such as green leaves or other vegetable fare.

These are the criteria or requirements for foods that are natural to the human dietary. Only fruits, and especially sugar-containing fruits, meet all these needs ideally. Nothing else meets all these requirements. As further lessons will demonstrate, the requisites of life can be amply met on a totally

fruitarian regime.

4. Nonfood Nutritional Factors

The first part of this lesson has emphasized the great breadth of the nutritional scope and perspective. This introduction is but a preview of some nutritional factors. In-depth treatment is given to most aspects of nutrition in subsequent lessons.

Among the nonfood nutritional factors are the following:

- Sunlight and natural light
- Fresh air and the oxygen it supplies
- Pure water
- Exercise, play and recreation
- Rest and relaxation
- Sleep
- Emotional poise
- Other requisites of life
- General body conditions

Inasmuch as you've already had a glimpse of nineteen essential factors and influences for great health in a previous lesson, and they included the above, the details will not be repeated here. You may refer back to lessons three and four if necessary. The above listing is to emphasize the great dependence of proper nutrition upon other needs of the body (besides food) being appropriately met. Nutrition does not occur in a vacuum. It is not an independent process. It involves the organism in every aspect of its being.

5. Discussion Of Conventional Nutritional Teachings

As perhaps you know or may have long suspected, and as was stated earlier in this lesson, conventional nutritional teachings are distorted to accommodate the "food" industries that dominate America. In fact, these distortions and fabrications predominate, not only in America, but also in most of the Western world.

If we follow conventional nutrition, we are bound to end up with malnutrition and toxemia and the pathologies they lead to. As Life Science serves no commercial masters, it has no interests to be served in teaching you false concepts. Further, we do have the benefit of knowing the truth. With respect to conventional nutritionists, it might be said that "It is better to be ignorant than to know so much that isn't so."

5.1 Do RDAs Represent Our Actual Needs?

The recommended dietary allowances of the Food and Nutrition Board of the National Research Council reflect the many fallacies to which a wrong philosophy of nutrition leads.

First, the RDAs are educated estimates and are sometimes revised upwards or downwards in view of "new findings."

Second, the board has been very liberal in its allowances. In almost every case, the allowance or suggested daily intake is two to ten times the amount needed by healthy persons. Likewise, they are far in excess of the needs of unhealthy persons, for unhealthy persons usually have impaired nutritive faculties, do not function as efficiently as do healthy individuals and should have a physiological rest in the form of a fast.

Third, the allowances are based on conventional diets which are comprised largely of cooked foods. Not only are cooked foods so deranged that a substantial portion of their nutrients are not usable, but they so vitiate the nutritive faculties as to impair them and lower their efficiency.

Healthy individuals eating a raw diet of proper foods have highly efficient nutritive faculties and thrive on a fraction of the intake on which the RDAs are based for conventional eaters.

5.2 The Concepts of the Basic Four Food Groups

The pathology and suffering resulting from the abominable nutritional concept of the four basic food groups is a national disaster! This concept and its promotion stems from a national policy of catering to industrial behemoths rather than to the welfare of consumers. While today's "food" industries are outgrowths of incorrect eating going back into the past, the justification for them is relatively recent in origin. The concept has been to acclaim as science the eating of "foods" that cover, not human needs, but the gamut of foods produced by powerful food interests.

The basic four food groups are as follows:

1. The milk group, which includes milk and all milk products.
2. The meat group, which includes meat, eggs, fish, legumes and nuts.
3. The bread-cereal group, which includes grains and grain products.
4. The fruit-vegetable group, which includes all fruit and vegetable fare excepting nuts and legumes which are in the meat group because of their protein content.

Eating specified amounts from each of these groups daily is proclaimed "balanced nutrition." In truth it is a "balanced market" for the commercial "food" interests that share the food market. The selection of foods in the typical American diet has nothing to do with meeting human needs. The typical American diet is gravely pathogenic and is mostly responsible for our deplorably diseased population.

In subsequent lessons you'll learn why milk and all milk products are unfit for human consumption and the physiological grounds for this unfitness. You'll also learn why all meats, eggs, fish (and legumes except sprouted) should be rejected as items of diet. Additionally, the relative unsuitability of grains and grain products (compared with fruits, vegetables, nuts and seeds) in the diet will be highlighted. Bread, cereals and other starchy foods, if included in the diet, are a far less than ideal part of the diet.

To comment on group four, we point out that some vegetables can be added to the human diet with benefit, though their rich content of nutrients is really unneeded if we partake liberally of fresh raw fruits (and abstain from eating unwholesome foods).

Tubers such as potatoes constitute a large portion of the vegetable intake in America. Inasmuch as most tubers are cooked to make them palatable, and cooking significantly lowers the nutritive value of the food, they, like cereal grains, are less than ideal as foods. In addition, many other vegetables, such as onions, garlic, radishes, spinach and others contain toxic substances (such as mustard oil in onions and garlic and oxalic acid in spinach) that make them unsuitable as foods.

So, while certain vegetables (such as lettuce, celery, broccoli, cabbage and others) may supply "nutrient insurance," many, if not most, vegetables have liabilities that make them less than ideal, even undesirable, as foods. Besides, we can obtain most, if not all, the nutrients we need from fresh ripe fruits, especially if we also include the non-sweet fruits often called vegetables (such as tomatoes, bell peppers, cucumbers, etc.) plus a few nuts and seeds in our diet of fresh fruits.

It bears reiterating that the items of diet to which we are not biologically adapted are, to some degree, pathogenic. Subsequent lessons will probe the ill effects of wrong diet in greater depth.

5.3 Eating Practices of Americans

Most of us are keenly aware of American eating practices. A typical breakfast may include every member of the four basic food groups. The typical American breakfast usually includes from the meat group ham, bacon or sausages and eggs, from the grain or cereal group bread (toasted or untoasted) and/ or some pastry or perhaps a donut, and a bowl of cereal. From the fruit and vegetable group may be an "appetizer" in the form of grapefruit, an orange, orange juice or cantaloupe. Also from this group may be some fried potatoes and possibly banana or other fruit on top of the cereal. From the milk group there is usually milk for cereal, cream for the coffee, butter for the toast and perhaps a glass of milk on the side. Sugar, salt, pepper and other sweeteners and condiments may be added.

An American lunch usually includes a meat dish with servings of vegetables, tubers or grains on the side. It usually includes bread and may include milk, ice cream, butter and other dairy products. An American dinner is not substantially different than an American lunch except there's usually more of it.

The typical American diet is heavy on members of the four food groups promoted in America as nutritious fare. There has not been in all history more pathogenic fare than this!

6. Discussion Of Human Eating Habits The World Over

Diets vary widely over the face of the globe. We have the Lapps and the Eskimos who live pretty much as carnivores on one end of the spectrum, and we have groups of peoples in the equatorial regions who live as almost total fruitarians at the other end of the spectrum.

6.1 The Origins of Paradises and Edens

Up until relatively recent times in human history, humans have been primarily fruitarians. To this day in Java and other Malaysian islands there are enclosures known as para desas where people live among fruit-bearing trees. (The word paradise derives therefrom.)

All over Europe and much of the Far East there were walled enclosures of heavy stone where people resided and tended orchards. These were called paradises or edens. The walls kept out animals, helped capture and retain the sun's heat and protected against winds and frosts.

Many words with roots of ava, and aval (such as Valhalla and avalon) evolved from terms born of a fruit culture. Valhalla originally meant apple hole or a place where apples were stored. Avalon merely meant the land of apples. The cultivation of fruits had attained scientific status long before formal histories were kept. We know of them through folklore legends and the remains of the incredible stone walls of these edens.

6.2 The Origins of Today's Eating Practices

If humans are natural fruitarians, how have they come to stray from the diet of their physiological adaptation? .

In nature, such animals as gorillas, cattle and horses will die of starvation rather than eat flesh; but chimpanzees and some other fruit-eating animals will rend and eat another animal on occasion.

Humans, in addition to being possessed of a strong survival instinct, possess extraordinary intelligence to employ in support of that instinct. About three to four million years ago humans begin wandering out of their homelands in tropical regions. In time they peopled most of the earth accessible to them. Over the whole globe, according to geological records, climate was hospitable and favored their frugivorous habits. The remains of tropical plants have been found in Alaska and other northerly latitudes.

Due to some cataclysmic event or events that resulted in cold and freezing temperatures and ice ages, humans in northerly climes retreated south. Those that remained had to survive on the fare available to them or perish. For a part, this meant meat and animal products. Humans had to learn providence against the seasons and to survive on the foods available in harsh seasons or disappear from the scene. This led to meat-eating and to the use of non-fruit foods. These dietary perversions, born of necessity, became fixed in many peoples and gradually spread to people who had no necessity to resort to non-fruitarian diets. Despite this, many pockets of people throughout the world never deserted their natural fruit diet and remain fruitarians unto this day.

Even such a harsh seasonal climate as found at the 8,000 foot level in the Himalayas in Northeast Pakistan has a fruitarian culture, that of the Hunzas. While the Hunzas do partake of some pulses and grains, theirs is primarily an ecoculture of orchards, and their dietary consists mostly of apples, apricots and other fruits that thrive in their climate and growing season.

The use of meat and animal products, grains, roots and other non-fruitarian fare has arisen in relatively recent times in human history and undoubtedly originated in the adversity humans faced in certain climates, especially northerly ones. The cultivation of grasses for grain is only a few thousand years old, perhaps less than ten thousand.

6.3 A Look at Some Diets over the World

If you were a Mongolian you'd probably be a nomadic appendage to an animal flock. You'd have some vegetables but, for the most part, you'd fare on meats, cheeses, milks and milk products.

If you were among groups of people in tropical Brazil and other tropical cultures, you might live almost entirely on a banana diet, on breadfruit or on some other fruit. The same might be true if you lived on many Pacific islands or Indian Ocean cultures.

If you lived in Southern China you might adopt a diet heavy in fruits, rice and vegetables, whereas in Northern China you might adopt a diet heavy in fruits, soybeans and vegetables.

Eskimos and Lapplanders live almost exclusively on animal fare. With the exception of some areas where fish is consumed extensively, most Asian cultures are vegetarian and fruitarian. Most Asian countries have what is called a rice economy, though some Asian cultures utilize other grains and legumes as staples.

Europeans, immediate ancestors for most Americans, are heavily into grain culture and make it a substantial part of their diet, though they also partake heavily of fruits and vegetables. Meat and animal products form but a small part of the diets of most Europeans. English-speaking people the world over are the heaviest meat-eaters with the exception of Argentinians and Finlanders.

When we look at the world's healthiest people we observe the Hunzas, Vilcabambians, Abkhasians and other primarily fruitarian cultures. These peoples are healthy for more reasons than just fruit-eating, however. They also live mostly in the outdoors in rather unstressful circumstances.

Wherever you look at cultures and their dietary practices of long standing, you find that people have adopted as foods that which they can most easily cultivate and harvest in their regions. They fare well or poorly in accord with the beneficence or lack of it in their dietary.

6.4 Do Different Dietary Habits Change Human Physiology?

Faculties usually require hundreds of thousands of years to develop. Who knows how many millions of years were required to develop human hands to the present stage? In some of our primate relatives the hands have yet to reach the facile stage which humans have attained.

In physiology changes are equally slow in coming about. Humans may eventually adapt to cooked foods and meats just as jackals and buzzards adapted to the roles of scavengers of dead rotting meats. But we might first become extinct! Many creatures have not survived drastic dietary changes. The weakness and diseased condition of most present-day humans is ample warning that our dietary is incorrect and death-dealing with portents of disaster for that part of humanity that indulges in it. The evolvement of adaptations to new foods may not occur at all or so slowly as to be of no good consequence.

In view of the ecological and health benefits of fruit culture and its ease of cultivation, it behooves humans to stay with the diet that developed them into the magnificent creatures that they were, that some are and all can be. By consuming fruits we'll thrive and, at the same time, place a demand on the marketplace that will spur the development of orchards and even more fruit!

7. Negative Nutrition: Harmful Foods And Practices

Foods have varying degrees of beneficence in the human diet. They also have varying degrees of pathogenicity in the diet. Our finest foods are the raw materials of our nutritive processes. Our worst foods are vitality-sapping junk the body must struggle to contend with.

7.1 Condiments Are Drugs

Condiments are substances used to enhance or modify flavors and tastes. That could include sugar, lemon juice, salt, pepper, vinegar, onions or anything else added to a dish to alter its flavor. In using the term today, we mean specifically pungent substances that are excitants, not whole foods that we'd eat liberally of for their own sake.

If we cut up bananas and then mix in some diced mango, the flavor enhancement is really stunning. Yet we would, not refer to the mango as a condiment. It is a food that we could make a meal of for its own sake. Likewise, tomatoes and nuts or avocado added to a vegetable salad really give the salad zest. Yet we do not usually call tomatoes, nuts or avocados condiments, for they are whole foods, any of which we can easily eat alone as a meal.

Thus condiments narrow down to those substances that are used exclusively and only to modify flavors. Vinegar, salt, pepper, basil, MSG, mint, sage, garlic and hundreds of other herbs and substances are used only as excitants to the taste buds.

There is one quality about all condiments that make them unfit for the human diet: they are all pathogenic. As excitants or stimulants they are inherently poisonous. The body has thousands of guardian angels. The fact that taste buds and other cells and senses of the mouth, esophagus and stomach

are put into a frenzy by certain substances is a warning. Accelerated functions and senses make us more aware of flavors in the foods condiments are combined with, but the excitation is a guardian faculty broadcasting an alarm. If you were trying to eat salt, pepper or vinegar in and of itself, you wouldn't get very far. They have no food value at all and, in fact, are indigestible! And that's the key to the body's objection to them. Body senses can detect the difference between foods and nonfoods. Foods are welcome and those items which the body cannot utilize for lack of enzymes to digest them or because of an outright anti-vital character, the body becomes excited or stimulated as a response. Unfortunately, humans have become so perverted as to seek this excitement as an end in itself. Many, if not most, people are seeking kicks.

Anything which the body treats as an anti-vital substance; anything which it cannot digest and use easily and efficiently; anything that presents problems by making chemical unions with body fluids and cells that excite and stimulate, are to be shunned. They all fulfill the definition of drugs which is another name of poisons. Discontinuance of them by habitues begets "withdrawal" symptoms just as occurs in deprived drug addicts.

Nature seasons foods natural to our palates with all the taste-satisfying nutrients we require. Flavors galore abound in them. Artificial seasonings do not really enhance their taste. Only a perverted palate seeks the kicks and "thrills" that are unnatural to our dietary.

7.2 Cooking Is Pathogenic

Cooking creates diseases on several counts. The most salient are as follows:

1. Cooking deranges and destroys nutrients. To the extent that this occurs, we are denied needed vitamins, minerals, proteins, essential fatty acids and other nutrient factors.
2. The deranged nutrients become, via cooking, unusable substances that are toxic in the system. This is readily evidenced by the doubling and tripling of the leukocyte count in the blood in half an hour to an hour after eating a meal of cooked foods. Any poison or drug taken into the body occasions the same body response.
3. The body must expend tremendously of its nerve and other energies to expel the offending substances of cooked foods and to clear itself of their contamination. Cooked food eaters have "hangovers" and "withdrawal" symptoms just as do drinkers of coffee, tobacco smokers or other drug addicts who forego their regular round of stimulation.

The body cannot build really healthy cells and tissues with poor quality materials. That which must be cooked to be palatable is not worthy of the human diet. Cooking makes it less so! Shun cooked foods and guide your clients to raw foods. Living foods of our adaptation are the road to magnificent health, and anything less than the ideal results in development, growth and functions that are less than ideal.

Thus cooked foods as articles of diet are pathogenic in that they poison us on one count and result in deficiencies on yet another count.

7.3 Processed, Refined and Preserved Foods

Anything used as food that is not in its original natural state has been tampered with.

Processing is altering or preparing foods or both.

Refining means "making finer" or reduction to a purer state. Thus white flour is refined wheat. Though some chemical processes are used in making it white, essentially the process of refining of wheat flour is mechanically accomplished by milling. Refining sugar is the extraction of sugar from sugar cane or beets and, through cooking and chemical processes, obtaining sucrose.

Preserving involves treating foods so they will be usable for a much greater length of time than is normal in nature.

The processing of foods involves anything that alters foods (including steps that do not alter them significantly or nutritionally). While the shelling and vacuum packing of nuts is processing, these processes do not detract from the value of the nuts. On the other hand, cooking fruits and adding sugar, preservative chemicals such as salt, etc., and then sealing them in cans and jars are very destructive processes. Drying the same fruits alters the fruits so that they can be preserved but does not alter them so significantly that they're, a liability in the human diet. Most processed foods in the marketplace are unsuitable in the human diet in the first place before any alteration, refining or preserving occurs. Examples of this are processed meats, refined cereals, pasteurized and homogenized milk, etc.

Canned foods have a shelf life of years and years. But they are not acceptable in the human diet even if they were good foods prior to canning. They might be acceptable only against the reality of eating them or starving to death. If canned foods only are eaten, death is rather quick and certain. That happened to many who were involved in the great Alaska gold rush, to those who were involved in the digging of the Panama Canal and to others in similar projects. This contrasts with excellent health that results from a diet of proper foods eaten in the raw state.

Freezing is a method of preserving foods. Frozen foods are not as wholesome as fresh foods. Their primary drawback is that the freezing bursts many cells and occasions degeneration due to oxidation. Freezing does not affect some foods at all, notably foods with low water content or very oily in texture. Dates, dried fruits, nuts and seeds may be frozen and kept fresher. Dried fruits, though not as wholesome as their fresh counterparts, are wholesome. Nuts and seeds are well-preserved by lack of moisture and air in their own shells. Vacuum packing and a nitrogen media do not harm many foods and preserve them with food values intact.

Some foods are coated with paraffin, oils, waxes and other preservatives. If these substances have not penetrated the protective skin or covering and can be readily removed, they are suitable for food if they meet other dietary criteria. Removal may be accomplished by a bath in a mild solution of hydrochloric acid, vinegar, chlorox or even very warm water in some cases. If the solution is warm it will be chemically more active and more readily unite with the oils, waxes or paraffins. Moreover, the warmer the solution the more likely waxes and paraffins are to liquify.

Processing, refining and preserving are done commercially to give foods longer shelf life, to change their structure so as to make them marketable, to make them more palatable, to enhance flavors or for a number of other reasons. However, refining renders foods deficient in one or more ways even if they were suitable items of diet to start with.

But the final insult is in "embalming" foods with preservatives to protect from spoilage, bacterial degeneration or oxidation. Preservatives are, one and all, poisonous. That is the character of a preservative. It must be an antibiotic, an antioxidant or have some quality to maintain appearances of wholesomeness. Needless to say, that which is poisonous to bacteria is likewise poisonous to human cells. That which is poisonous interferes with digestion as much as do deranged portions of cooked foods.

As a rule/steer away from all preserved foods and give preference to fresh ripe fruits with some vegetables, seeds and nuts.

Food processing is also done in the home, as well as commercially, for, as stated earlier, it comprises anything done to alter foods from their original form. Cooking, grinding, chopping cutting, peeling and blending are all at-home food-altering processes. Of these, however, cooking is by far the most destructive of foods' nutritional value and is, therefore, the primary at-home process to avoid (or keep to a minimum). Even the other at-home processing should be limited to some extent. For example, you may serve juices sometimes but whole fruits (and vegetables) most of the time. Or you may prepare cut-up salads sometimes but, serve whole fruits or vegetables most of the time. A larger portion of the nutrients are left intact in whole foods as a rule. One notable exception to this, however, is sesame seeds. Because they are so tiny, they normally do not get thoroughly masticated, even by very conscientious eaters. Therefore, grinding them and using them immediately may be a beneficial at-home process. Food

preparation will be studied in depth in a future lesson.

7.4 Foods Not Suited to the Human Dietary

Any food that does not meet all the criteria heretofore cited is not a food of our natural adaptation. Foods of our adaptation meet our needs in every respect. Only fruits meet all our various needs.

Humans would not survive very long on a total meat diet. Shorter yet would be our lives if we ate a meat diet that had been cooked—well-done. We can survive two to three times as long on our fat reserves as we can upon an exclusive diet of meat. The body lives very poorly on a protein diet, being only about 30% efficient in converting proteins into fuels (carbohydrates), our primary need. This compares with about 90% to 95% efficiency in converting the sugars of fruits into energy.

Humans cannot live on condiments and seasonings, raw of cooked. Condiments are used for their poison content, not for their nutrient content. Nor are we physiologically equipped to live on milk or milk products, eggs, fish or other animal products. Also, we are not suited to handle a diet heavy in fats and proteins, even if they are consumed totally raw, something most unlikely in our society because it can abide unnatural foods only if denatured by cooking. We need fats and proteins only in small amounts. Larger amounts are a toxic burden, tax our digestive systems and use up too much vital energy.

Humans cannot live on herbs in the current frame of reference because they, like condiments, are toxic and do not possess food values for the most part. Vegetables or plant fare as leaves, stalks, stems, grasses, etc. cannot comprise the mainstay of the human dietary because we cannot obtain our caloric needs from these types of foods. Few vegetables appeal to the palate as such anyway. Some vegetables, notably lettuce, are prized because of their relative sweetness and texture. Chlorophyll is normally bitter and we're turned off by bitter substances. Our natural foods appeal to our senses, and none appeal to our senses as do fruits, a sure indication that fruits are our natural preference because of natural adaptation. In the cooked state, vegetables appeal more because of the conversion of their starches to dextrin, a form of sugar.

A diet consisting almost entirely of oily foods is not suited to our needs. We can utilize a small amount of oil with benefit. This need can be met incidental to primarily carbohydrate fare. Oily foods are handled very slowly. (Digestion usually takes four to six hours.)

While oils are highly concentrated sources of calories, the body cannot make use of them with the facility it utilizes monosaccharides. Those who eat heavily of nuts and oily fruits exhibit problems and are not as healthy and vigorous as those on primarily carbohydrate fare.

There are groups of people who practically exist on coconuts. But they are eaten at a stage when the oils have not been formed to any extent. The coconuts are still primarily carbohydrates.

Starches also comprise an incidental part of our diet. We cannot survive on an exclusive diet of raw starches. First, we have a very limited capacity to digest raw starches. In light of this capacity, we cannot meet our needs for fuels and other nutrients on a raw starch diet. Secondly, most starches are contained in microglobules of cellulose that neither chewing nor digestion will break down. Hence we are not naturally equipped to eat raw starches as are birds with craws or animals that have a plethora of starch-splitting enzymes.

Our ability to utilize grains, tubers and other starchy foods relies upon the agency of cooking. However, some of these foods, notably the turnip, rutabaga, sweet potato, carrot and others, can be utilized raw only because of their sugar content. The traditional potato is entirely unsuitable, being repulsive to normal tastes when raw. Raw grains are repulsive to normal tastes for the same reason—we reject starch foods naturally with our natural equipment that evaluates foods beneath a conscious level. We can force ourselves to eat these foods and even pervert ourselves to the point we value them just as we value condiments and drugs. But this is contrary to our nature, not in accord with it.

Humans cannot utilize milk in its raw or cooked state. Raw we do not have the enzymes (rennin which

ceases to be secreted in humans at about age three, the proper weaning age) to break down casein with which milk proteins, calcium and other nutrients are bound. At about the same age we lose the ability to secrete lactase, an enzyme that reduces lactose, the milk sugar, to monosaccharides. Therefore, most of our people are said to be "lactose intolerant." We cannot utilize fermented milk products because lactic acid and putrefaction by-products are toxic to humans just as they are to the bacteria that excreted fermentation by-products as bacterial defecation. There are very few products of bacterial activity that we can use. (Vitamin B-12 is a notable exception.)

Humans cannot live well on exclusive vegetarian fare even if it includes fruits referred to as vegetables (such as tomatoes, cucumbers, peppers, eggplants, squashes, pumpkins, etc.). Foods that must be cooked are third- and fourth-rate foods and should form no part of the dietary. Only the stark reality of being deprived for inordinately long periods of proper foods should force us to eat foods that are less than ideal in the diet.

7.5 Dietary Follies of Health Seekers

Seeking out wholesome organic foods free of unnatural fertilization and pesticides is most laudable. But it is relatively meaningless and ineffective if a person then proceeds to take organic foods and cook them. Much of the advantage is wiped out. Organically grown foods are always superior to their nonorganic counterparts undergoing the same amount of processing, cooking, etc. But it is preferable healthwise to eat conventional produce uncooked than organic produce in a cooked state.

Many health seekers believe food supplements are necessary because we have deficient soils. We do have truly deficient soils, as they would not produce foods that require the minerals in which they're deficient. We have many soils, even in their virgin state, that are deficient in something or other that makes them unsuitable for certain plants or trees. We have many soils that have lost the capability of growing corn, potatoes, wheat and other staples but which will still grow grasses and legumes. These soils can be built up very quickly if certain minerals are judiciously added (using organic methods). The deficient soil/deficient food complex is fostered among health seekers by fractionated food purveyors who are peddling a synthetic manufactured supplement or so-called natural supplements, both of which are far inferior to whole foods. Supplements can in no way make good any partial deficiency that may exist. The synthetic supplements are not usable in any circumstances, and the body treats them as drugs. It is the stimulus of drug effects that we mistake for health effects. We mistake the energy an exhausted horse shows under the whip as beneficient when, in fact, it is pathogenic. Even if part of the supplements are obtained from organic sources (as a fraction of a given supplement, say 5 to 10% only) so they can be represented as natural, they are still worthless. They're also worthless if extracted entirely from organic sources. The body uses nutrients in context with other nutrients as a team. The shameful reality is that these supplements are obtained, as a rule, from the same products grown on the same "deficient" soils about which they warn us.

Health seekers often buy waste products that are sold as health products. An example of this is the beer manufacturers' waste product—brewers yeast. Another example is the waste product of sugar manufacturers—molasses, which is a totally unusable and harmful product. Some health seekers buy or have bought the wastes of other manufacturers, too, especially the wastes of cheese manufacturers and meat processors. Whey, liver, gelatin and other wastes are thought to be healthful when, in reality, they are worse than worthless.

Many health seekers also buy minerals from unusuable sources. Many drink sea water, eat sea salt, drink hard mineralized waters, eat molasses, dolomite and/or take mineral supplements. All these contain inorganic minerals which are not only not usable by the body but which harm it grievously. In seeking health, many people fall victim to pathogenic practices foisted upon them in the name of health.

Many health seekers are likely to (or do) fall victim to alternate schemes of drugging. They are often persuaded to take a multitude of herbs and toxic plants because they are supposed to cure or prevent disease. Molasses and other waste products are also touted as medications. However, the truth is that

health is built only by healthful practices. Diseases do not have to be prevented for the body will not initiate and conduct diseases unless the need exists. If everyone discontinued those practices that pollute their bodies, there would be no occasion for disease. In any event, so-called medication can never help and will only cause further harm to the body.

Among the many pernicious plants and herbs touted as healthful because of their toxin content, not their food content, are onions, garlic, comfrey, aloe, cayenne peppers, mints and innumerable others. In seeking health, many concerned individuals end up further polluting their bodies, thus creating more disease.

7.6 Drinking Habits Are Damaging to Health

Humans are not naturally drinking animals, for we have no natural equipment for that practice. Drinking is done artificially with the aid of tools. Our natural diet is usually water sufficient.

In addition, drinking as practiced today is almost totally pathogenic. Drinking pure (distilled) water is not pathogenic, but substances which occasion its drinking are usually pathogenic. (Sometimes, of course, extraordinary heat and/or vigorous activity lay the bases for drinking pure water.)

Most drinking is of poisoned drinks. Sugared and flavored drinks are toxic, as are coffees, cocoas, sodas, beers, wines, whiskeys, teas of all kinds, etc. Even fruit and vegetable juices are far less than ideal because they represent fragmented rather than whole foods.

Most drinking amounts to drug habits rather than acts supplying needed water. It bears reiterating that almost all drinking is pathogenic.

8. A Survey Of Unconventional Dietic Schools And Their Fallacies

There are many schools of thought concerning the content of the human diet. We have viewed conventional eating which embraces the concept of the four basic food groups. Other schools are called macrobiotic, vegetarian, fruitarian, vegan and yet others. Let's take a brief look at some of these one by one.

8.1 The Macrobiotic School

This school was founded by George Oshawa, a native of Japan. The emphasis is on a so-called perfect diet consisting mainly of cooked rice, along with some cooked vegetables. Such a heavy diet of cooked rice provides primarily fuel (carbohydrates), but carbohydrates from cooked foods also render the toxic by-products of heat degeneration. Very few fruits are included in this diet, and, while the macrobiotic diet is a great improvement over conventional diets on many counts, it is far from ideal.

Even a brief discussion of the macrobiotic diet would be incomplete without the mention of the concepts of yin and yang. These concepts represent many sets of qualities, such as acid & alkaline, sweet and salty, and hot and cold. Without going into the subject, suffice it to say that, in macrobiotics, determinations of wholesome foods are made based on this yin-yang concept.

8.2 Supplementation and Special Foods

This might well be called the megavitamin or megafeeding school. Even though the only way to render a deficient diet adequate is to eat a diet adequate in natural nutrient factors, this school goes beyond that.

They say that if it's a good thing there is no such thing as too much. For example, the RDA for vitamin C may be 60 milligrams daily. People in this school, such as Dr. Linus Pauling, advocate up to 10,000 milligrams daily. If 4,000 international units of vitamin A are the RDA, the megavitamin people advocate 100,000 to 200,000 units daily.

However, the body cannot use more than it needs, and it must excrete that which is in excess of needs. But the massiveness of the dosages is just one aspect of the harm wreaked by the supplementation advocates. The synthetic products that dominate the market are treated as outright drugs by the body! Even if these supplements were extracted entirely from natural sources, they'd still be unusable. The body uses foods, not individual nutrients. It uses them synergistically as nature puts them up, not as extracted or laboratory synthesized and compounded in imitation of nature.

8.3 Herbs Used as Alternate Medications

Some health seekers eat poisonous plants daily in the belief that they need "medicines" for health. Entrepreneurs harvest weeds from the wilds and from cultivated fields by the hundreds of tons for people who believe in "natural medicines."

Herbs are not consumed for their nutrients and none could be consumed as foods in themselves. Death could result from an "overdose" if too much of any of these were eaten as a food. People have died on rather small amounts of some herbs.

8.4 The Vegetarians

There are about 25 million people in this country who eat only fruits and vegetables or who consume either what is known as an ovo- or a lacto-ovo vegetarian diet. Vegetarians who eat no animal foods whatsoever are called *vegans*; lacto-vegetarians include dairy foods in their diet; ovo-vegetarians include eggs but not dairy products; and lacto-ovo vegetarians include both eggs and dairy foods in their diet.

Many, if not most, vegetarians are ethical vegetarians, but this is especially so with the vegans, as they refuse to cause suffering to animals. Vegetarians may eat lots of cooked foods, or they may consume an all-raw or almost all-raw diet. Many, if not most, vegetarians use herbs, especially if they are vegetarians for, or partly for, health reasons. Some vegans are Natural Hygienists. The common bond of vegans is non-exploitation of animals.

Vegetarians generally are healthier than the population at large, for, while many of their practices are not healthful, per se, they are less harmful than those of conventional eaters. Some vegetarians will eat just about any kind of non-animal food, even alcoholic beverages (really drugs and not foods) and junk foods (also more like drugs than foods in the system). These people are vegetarians, not for health reasons, but for moral reasons relating to the killing of animals. However, most people who are vegetarians are more health oriented than non-vegetarians.

8.5 The Bircher-Benner School

This school is essentially a vegetarian school that is heavy on grains with some fruits.

8.6 The Mucusless Diet

The founder of this school, Arnold Ehret, reasoned that anything which results in mucus formation is unhealthy. This reasoning is correct, for anything that causes the system to secrete mucus is an

indication that toxic or unwelcome materials are in the organism. Ehret thought that the foods themselves formed mucus, however, when, in fact, the organism creates the mucus in response to unwelcome foods.

Through trial and error Ehret discovered that a diet of non-oily fruits and some vegetables built high-level health and function and did not result in mucus formation. Thus he called his diet the mucusless diet.

8.7 The Waerlanders

Ebba Waerland of Sweden spent most of his life studying the touchstones of health. He was greatly influenced by the Bircher-Benner school and advanced their dietary philosophy to include more fresh raw vegetables and fruits. However, though he still advocated the use of various grains, he recommended they be prepared in a more conservative manner.

In many of his teachings Waerland added to the science of nutrition and health and paralleled the teachings of the Natural Hygienists. As a worldwide traveler and a deep student, he undoubtedly was well acquainted with the philosophy and practice of Natural Hygiene and added to his own system those features he liked. Especially did he advocate fasting as a course to follow during illness (and in good health!) as a health measure.

8.8 The Fruitarians

There are relatively few raw food fruitarians, but there is much interest in fruitarianism and sentiment for it. Humans are naturally frugivores and there is a sound basis for fruitarianism. But, except for the most ardent of fruitarians, most are likely to eat some nuts and vegetables. Many fruitarians are Natural Hygienists, though many Natural Hygienists are not fruitarians. The primary difference between the fruitarians and the fruit-eating Hygienists is that many fruitarians do not adhere to principles of compatible food combining. Raw food fruitarianism is a fast burgeoning element in our society though, as yet, their numbers are only in the thousands.

8.9 The Natural Hygienists

This dietary school embraces many divergent outlooks on dietary fare. All Hygienists advocate a mostly raw diet of fruits, vegetables, nuts, seeds and sprouts, although some advocate the eating of cheese and raw egg yolks. Some Hygienists advocate "complex carbohydrates" as important items of fare. They feel that conservatively cooked rice, squashes, potatoes, yams and other starches are good in the diet if eaten in conjunction with hearty vegetable salads. Likewise, they are often heavy eaters of nuts and avocados if consumed in conjunction with a hearty salad of green leafy vegetables and some fruit fare popularly considered vegetables.

Hygienists originated and fostered the concepts and practices of food combining. Also, they advocate regimes in which diet comprises only a part. As a Life Scientist you'll also call yourself a Natural Hygienist, for these are identical philosophies. But the dietary score has yet to be settled in practice although many Hygienists are idealistic raw fruitarians. It is our endeavor in this course to present data sufficient to settle this score for you. Even the least healthful Hygienic diet is such a great improvement over conventional diets that those who adopt it must improve their health. Almost no one is so far down the road of life that they cannot improve dramatically upon the adoption of the Hygienic regime, even if they adopt a less than ideal version of it.

As a health professional you must keep in mind that anything less than ideal begets less than ideal results. But, on the other hand, every improvement you inspire in your clients will result in corresponding improvement in well-being.

8.10 Foods as Medicines

Like the herbal school which looks upon herbs as medicines, this school tries to employ foods as therapeutic tools. There are those who swear by the use of raw egg yolks; there are those who swear by blended salads, often with egg yolk. Many look upon fruits as cleansing foods. A multitude of foods are taken with the idea that they will prevent or "cure" diseases.

We must repeat that foods are raw materials which the organism acts upon. They have no actions of their own, much less cleansing and healing abilities.

8.11 The Juice Therapy School

This school advocates a diet heavy in or consisting primarily of juices extracted from fruits and vegetables. It was founded nearly a century ago, and Benedict Lust was one of its luminaries. Today N. W. Walker is perhaps its most articulate exponent.

Juices are fractionated foods subject to oxidative deterioration. Oxidation occurs quickly. For example, orange juice can lose up to 60% of its vitamin C within an hour after juicing. Iron is oxidized very quickly in all foods. This may be observed visually if an apple is broken open and exposed to air. Oxidation creates toxic byproducts. An example of this is cooking, which is a much accelerated process of oxidation as well as heat degeneration.

Juices are not whole foods. Many valuable nutrients are lost in the pulp. Further, those who "drink" their foods are often guilty of consuming inordinate amounts of it to secure satiety. While we can safely partake of several pounds of watermelon and like amounts of some juices, there are other juices that a few pounds of constitutes far too much food. Carrot juice drinkers are notorious over-eaters.

Nature did not furnish humans with juicers outside of those implicit in chewing.

8.12 The Blended Salad Diet

There is a small school that believes that blended salads three times a day are beneficial in the human dietary. While blending involves the whole food, it still has the objection of oxidation and enzymic degeneration.

Blended foods are never as tasty as their whole counterparts, even if eaten immediately after blending because enzymes and oxygen degenerate foods and destroy their goodness so quickly.

8.13 Conclusion

As you can see, there are many different schools of thought on diet and nutrition. The macrobiotic school is based on the concept of yin and yang and is rooted in Oriental tradition; vegetarian diets are based either on the ethics of killing animals or on the unhealthfulness of meat (and, for some vegetarians, dairy foods and/or eggs) or both; the mucusless diet is determined by which foods do and don't result in mucus formation by the body; and the herbalists and "foods as medicines" schools base their diets on the supposed curative properties of foods.

However, the only diet that is totally based on sound physiological principles, that is based on science and not on tradition, is the Natural Hygienic diet, which is the same as the Life Science diet. Some Hygienists are fruitarians, most are vegans and all are vegetarians. Oftentimes individuals adopt and popularize diets that reflect their own individual ideas and experiences with diet, and the best of these diets have some commonalities with the Hygienic diet.

The diet of the Natural Hygienists is the only one that is particularly concerned with food combining, and this aspect of the diet is not only unique, but it is based on physiological principles.

9. The Physiological Necessity Of Proper Food Combining

One of the cardinal principles around which Natural Hygiene/Life Science is built in dietary practices is that of food combining when more than one food is eaten at a meal. Humans are capable of digesting with great ease a single food of their adaptation. However, when more than one food is consumed at a meal, the foods thus combined must be compatible in their digestive chemistry.

If the digestion of a meal's various items requires differing digestive tasks, digestion will suffer. Digestion may be retarded and vitiated whether or not we are aware of it, whether we suffer the discomforts of indigestion or fail to feel them. Indigestion may be suffered beneath the level of awareness for decades before its debilitating effects show up as diseases and symptoms. On the other hand, the sufferer may be keenly aware of distresses resulting from indigestion on practically a meal-to-meal basis.

The ill effects of wrong eating and improper food combining are commonly treated with a raft of drugs, primarily antacid drugs such as Turns, Rolaids, bicarbonate of soda, poisonous aluminium preparations, Milk of Magnesia and so on.

9.1 The Chemical Character of Digestion and the Rules It Decrees

Further along in this course a complete lesson is devoted to food combining. The physiology of digestion recognizes that different foods present dissimilar digestive tasks. For instance, protein foods require an acid medium for digestion. Pepsin, the protein digestive enzyme, requires an acid gastric secretion, more specifically hydrochloric acid. Starchy foods, on the other hand, require an alkaline medium to enable the enzymes of salivary amylase (ptyalin) to perform their digestive task. Below a pH of 4.0, starch digestion is totally suspended. Pepsin will not break down proteins at a pH higher than 3.0. Thus starchy foods and protein foods are incompatible in digestive chemistry. From this physiological fact of life emerges this feeding rule: Do not eat a protein food and a starchy food at the same meal.

There are many foods that do not combine with others. It is the practice of many to eat oils and sugars together. Sugars undergo no digestion in the stomach and melons and sweet fruits may stay in the stomach as little as ten minutes or remain for as long as thirty to forty minutes. They are expelled rather quickly and absorbed very quickly from the small intestine. Oils remain in the stomach for several hours for processing before being forwarded to the small intestine for further elaboration. If eaten with fruits they hold up the sugars and fermentation is very likely to occur, thus vitiating the meal.

9.2 Differing Digestive Times Dictate Selectivity in Food Combinations

Even different fruits have differing digestive tasks. The body readily digests acid fruits and it also readily digests sweet fruits. But acids must first be changed and become alkaline before absorption can occur. This involves some delay in the stomach. Any delay in the stomach of a sweet fruit may dispose to fermentation. Thus, again, combining foods improperly may vitiate digestion and contribute to physiological problems, immediately and down the road, if unhealthful physiological practices continue.

Sweet fruits have their own digestive characteristics. Watermelon is perhaps the fastest digested of sweet fruits. Other melons are passed through the stomach quickly, too. But bananas, grapes and apples may remain in the stomach for two or three times as long. Hence, if bananas, apples or grapes are eaten with melon, fermentation and upset stomach may result.

9.3 Character of Food Determines Suitability in Diet

Humans are adapted to a narrow spectrum of the world's foods, just as are most other animals. Our anatomy and physiology are highly specialized to handle efficiently the fruit foods of the earth. We have developed limited capacities to digest oils, proteins and starches. But under no circumstances are we primarily protein-eaters, starch-eaters or oil-eaters.

Inasmuch as some 85% to 90% of our diet by dry weight is for the purpose of fueling our body, it behooves us to eat primarily foods that most efficiently furnish our fuel requirements. Inasmuch as foods of our natural adaptation furnish this ratio of fuel values relative to other necessary nutrient factors within their context, we can most healthfully devote ourselves to a raw fruitarian regime.

Many, including a great number of Hygienists, will object to the all-fruit diet and cite supposed dangers that fruits are inadequate in the needs of life, especially proteins, essential fatty acids, mineral salts and vitamins. Thus they advocate green leaves and other vegetables, seeds and nuts and even cheese. They condemn "the more is better school," yet tend to side with them in practice.

Close scrutiny of our physiological character decrees that we eat sparingly of nonfruit foods. It is erroneous to assume that the fruit diet is deficient in the needs of life, as will be demonstrated in other lessons.

10. Nutritional Miscellany

The body supposedly uses eleven calories per day per pound of weight for metabolic purposes only! Hunza men who have superb physiques and perform labor that would exhaust our best on a daily basis have a total intake of only about 1,900 calories per day, about 12 calories per pound of weight! There must be some terribly wrong calculations here or else the needs of healthy individuals for fuel values is far below our diseased average.

In Vilcabamba, caloric intake is lower yet, being only about eight to ten calories per pound of weight per day. The average caloric intake there is about 1,350 calories per day. The Peruvians of Vilcabamba work hard in their gardens and fields, as do the Hunzas.

The work these two groups of people do would require, according to our nutritionists, from 3,500 to 7,000 calories a day! Something is amiss! In dealing with your clients, you'll keep these facts in mind. The less feeding, down to a point, the more efficient the body is. This is even true if you're feeding highly efficient fruits rather than very inefficient meats and other high protein/fat foods that dominate in our American diets. Keep in mind that our high-powered dairy, poultry, cereal and meat industries have a heavy bias in having our populace consume as much of their products as possible. Perhaps they have influenced the RDAs so that people are pushed to overeat on their products.

11. Questions & Answers

What are our real protein needs and how can we possibly get these from fruits? Fruits aren't

protein foods.

Tests conducted by Professor Chittenden of Yale and others indicate that an average man requires about 25 grams of protein daily. There are people in some South Pacific Islands and elsewhere that live primarily on starch foods, especially cassavas. Their diet is low in protein —only about 15 grams daily. Yet these people are reported to be in excellent health. The body has the capability to recycle most of its protein wastes. Cassava, the main starch food eaten by these South Pacific people, has only about 1/5th of 1% protein, about one sixth of that of bananas. Moreover, these people cook their cassava. They are said to eat six to ten pounds of this food daily.

Our real protein needs are about 25 grams daily. The average fruit contains 1% protein. We should eat 2,500 grams of fruits daily, about five and a half pounds with water content. For an average man, this is not a tremendous amount of food. The average American consumes about seven pounds of food daily and ingests 94 grams of protein. Moreover, this diet is so heavy in fat that about 44% of America's caloric intake is derived from that source.

True, fruits aren't protein foods. But neither are we protein eaters as are carnivores. But look at those who do eat protein foods such as meats, cheese, etc. They are a diseased lot. In fact, most Americans are sick and the fact that they daily take in about four times their protein requirements is a contributing factor.

Fruits, we repeat, furnish us amply with our protein needs in an easily used form. This is particularly true if you include avocados and/or nuts, both of which are technically fruits.

You've never had one good word to say about drugs. In fact, you've knocked them so much and carried the definition so far as to make almost everyone a drug addict of one kind or another. If they were so harmful, surely we'd all be long since dead.

Humans are a hardy lot. They represent an aggregation of some hundred trillion cells with thousands of guardian angels. The impulse to life is great. We have a tremendous capacity for eliminating poisons. Despite this, most of us are diseased. How many assaults of food poisoning from condiments and cooked foods can we withstand? Most Americans have 50,000 to 70,000 bouts of leucocytosis before they die from it in the form of some degenerative disease, usually cancer or cardiovascular problems. We cut our life potential in half. If drugs had any value in the organism they would be foods, not drugs. Drugs are one and all poisonous regardless of their source. Almost every American is hooked on drugs of some kind.

Is there a science of correct feeding? It seems that the term nutrition covers much more than correct feeding.

There are two technical words that have to do with feeding, whereas nutrition covers all processes of supply and elimination and everything that effects those processes. Orthotrophy means correct feeding. Ortho means correct and trophy means to feed. Aristophagy means best eating. In the sense that correct feeding is the best eating, both words mean the same.

Don't certain types of foods help you get well? Juices and fruits help you clean out. Garlic is well known to help high blood pressure cases. Aloes helps heal wounds and ulcers.

Can you imagine a fruit or a fruit juice with an inborn intelligence and will such that, when consumed, instead of being digested, it goes into the blood stream and promptly starts rounding up toxic materials and putting them out of the body? Let's emphasize again and again that foods do not act in the body, that all the action is from the organism. Chemical

actions may occur from chemicals in ingesta, yes, but any actions other than body actions are toxic actions.

However, fruits and juices are so easily digested and used and introduce so little food debris into our bodies that they do leave the body with extra energy to perform its duties. When freed of the burdens eliminating toxins from polluting foods and digesting unsuitable foods, the body devotes itself to extraordinary cleansing with the extra energies available.

Garlic does not help high blood pressure. In the presence of allicin and mustard oil, two of the toxic substances in garlic, the organism dilates its blood vessels to more quickly circulate blood and expel these toxins. The heart beats faster and leucocytosis occurs, sure signs of the toxicity of allicin and mustard oil. These substances freely permeate all body cells and tissues. They are not digested and used but excreted through the kidneys, bowels, skin and lungs.

After expulsion the blood pressure will be just as high as before if the same regime that caused it remains in effect. The garlic has helped nothing. Rather, it has complicated an already diseased situation. The drug effects of garlic are mistaken for beneficial effects. The problem is not solved by garlic, and high blood pressure is not the problem. Rather, it is but a symptom of the problem. The problem remained even though the symptom was lessened or suppressed.

Aloes applied to ulcers and wounds do not heal them. The toxic material in aloes, aloin, is absorbed by the body when applied to the skin and to open sores (which the body uses as an ejection site for toxic wastes and ingesta). When the poisons begin coming in from the outside the body closes the wound promptly, shutting down eliminative operations at the site. While the poisonous aloes have been the occasion for the body closing the wound, they have not healed the wound but were a source of a poisonous alkaloid. The body does the healing.

I read recently that an 80-pound chimpanzee was so strong that two handlers could not subdue it: Are they so strong? What kind of super foods do they eat?

Chimpanzees in nature have the strength to do acrobatic feats and handle their weight with such ease and facility as to put humans to shame. A four hundred-pound gorilla has about thirty times the strength of a 180 pound man. This attests not so much to the strength of these animals as to the degeneration and weakness of humans. In nature we were equally strong. We can achieve this strength again if we adopt our natural diet and practices akin to those that we developed in our natural habitat.

A substantial part of the diets of chimpanzees and gorillas consists of fruits. This is fruit-power for you.

Will an all-fruit diet cause nervous breakdowns and nervous problems as I've so often heard?

You will find no evidence of this among fruitarian societies or among fruitarian animals. Diets that are sufficient in the raw materials we require are the basis of health. They cause neither health nor ill health. Nervous breakdowns can come from nutrient inadequacy and from stressful situations, especially those that constantly drain the organism of nervous energy. In this society, millions have nervous breakdowns. We have only a few thousand fruitarians and they are faring well rather than poorly.

What is wrong with eating starchy foods? Doesn't cooking change the starch to usable sugars?

We actually use very little of the starch components in starchy foods, as most of the starch is not penetrated by our digestive amylases and thus is not broken down. The starch that is available cannot be digested to a great extent by humans because they quickly exhaust their limited supply of salivary amylase or ptyalin. Thus we fail as starch eaters.

Cooked starches are dextrinized, and more of the fuel values are available to us, yet, on the other hand, much of the food components are degenerated by heat and are, therefore, toxic in the system.

We're not meat eaters, then why do we secrete hydrochloric acid and pepsin?

Proteins from whatever source (meat or nuts, for example) require the enzyme pepsin and an acid medium in which to be digested. We need only small amounts of protein and we digest it with an efficiency ratio of only about one to two. Animals that live on protein diets have hydrochloric acid solutions so strong that unchewed flesh is readily digested. A tiger's stomach secretes a hydrochloric acid solution some 1,100% more concentrated than that in humans. Again, proteins form but a small part of the diet of humans in nature, whereas tigers eat heavily of proteins in the meat, bone and offal of their prey.

How do you, as a fruitarian, manage to control your hunger? Fruit meals leave me mostly unsatisfied. Further, I feel empty and ravenously hungry within an hour or two after eating fruits. I have to eat five or six times a day if I'm on fruits just to keep my hunger under control. If I eat some nuts or an avocado right after my fruits I feel satisfied, though.

I've eaten a diet of 80% to 90% fruit for many years now. I rarely eat my first meal of the day before noon and I rarely eat more than two fruit meals in a day. Further, I eat about three or four meals weekly with some avocado or perhaps nuts and a hearty salad. I find my desire for vegetables and nuts waning and my desire for fruits increasing with the years. I feel very comfortable after fruit meals whereas sometimes I feel a bit uncomfortable after vegetable meals. I sleep more and feel more sluggish when I've had a nut and vegetable meal. I don't feel as alive, alert and zippy on mornings after vegetable and nut or avocado meals.

On occasion I have eaten a salad and nut meal at noon. As a result I usually missed the evening meal because even the best foods repulsed me—I had no hunger. It's as if my body closed down digestive operations. That is how "satisfying" vegetables and nuts are to me.

The fact that most people mistake irritation and vital symptoms of recovery for hunger does not mean hunger exists. An emptiness in the stomach means that the food has been passed from it. That is not hunger. Hunger is felt in the mouth and throat just as thirst is. It is not unpleasant and it urges us to eat just as thirst urges us to drink.

What we commonly mistake for hunger that drives us to eat are pathological symptoms not unlike the "withdrawal" symptoms of tobacco, coffee, alcohol, condiments and other drug addictions that drive us to go back for another fix. When the body is without its fix for a while, it begins clean-up operations. These usually involve unpleasant symptoms that drive us to get another fix. Another fix engages the body in activities that depress vital functions, especially eliminative functions. Thus we are satisfied for a while, in fact, quite a while in the case of foods that are not of our adaptation.

The fact that fruits are so easily digested and used permits the body to quickly reassert its vitality and devote itself to the cleansing and eliminative processes. The symptoms are not pleasant as the body restores itself from the effects of a previously unsuitable diet. We thus try to smother those symptoms with another meal. Those symptoms do not constitute hunger.

Eating suppresses them in the same way that a cup of coffee suppresses the hangover of previous coffee-drinking.

As a mostly fruitarian I rarely experience any demand for food before noon and I'm satisfied until the evening meal. Sometimes I miss the noon or evening meal and I'm not particularly uncomfortable from the lack of food. I think most of this so-called hunger is psychological and pathological in nature.

You have said that the Vilcabambians of Peru get along well at hard labor on 1,300 to 1,400 calories daily. It's well known that hard working men need 3,000 calories and more a day. How can that few calories support vigorous work which these people are supposed to do?

Let us think about this. The world's healthiest and longest lived people eat a primarily carbohydrate diet. They eat very little protein foods in the form of legumes and very little oily foods in the form of legumes and nuts—in fact they consume almost no oily foods. Contrast this with Americans, especially laboring men, who take in 40% or more of their calories as fats and oils and a substantial part of the remainder in protein foods, especially meats, eggs and cheeses. Obviously the human organism isn't very efficient in dealing with these foods, as the studies indicate.

Further, we must recognize that the average American is a walking pathological museum, requiring far more energy just to deal with the pathology than healthy people. Further, impaired organisms do not operate efficiently, whereas healthy people operate efficiently and make full use of their foods.

How can you build muscle on a total fruit diet?

The average man uses about 75 grams of protein daily. Of this he needs only about 25 grams from the diet. The remaining 50 grams is obtained by recycling wastes. Fruit amply furnishes the 25 grams needed from outside sources daily. The healthier an organism becomes, the better use it can make of its nutrient supply. It is a myth and a delusion that we need more protein than normal to build muscles. It's like saying that we need more bricks to build a house than the plans call for. Once the structure has been built, replacement and additional bricks are needed but little.

How can we get vitamin B-12 from fruits? Vegetarians are warned about the lack of vitamin B-12 in vegetables and certainly fruits have none of this vitamin.

There's no vitamin B-12 in grass either, yet cattle have plenty of vitamin B-12. Almost no food in nature has vitamin B-12 in it.

We get our vitamin B-12 needs the same as other creatures in nature. We were not cheated in this regard. We do not have to eat animal products as the meat and dairy industries urge us to do. The bacteria of our intestines create vitamin B-12 which we absorb just as with other animals.

Almost all cases of anemia and B-12 deficiency occur in meat-eaters, not in vegetarians, which, if it happens, is given publicity like you wouldn't believe.

Shouldn't we eat locally-grown fruits for best nutrition? Animals in nature must live on locally-grown fruits and, as you have said, they're very healthy.

Here in Texas that would be great advice and we can do it. Our forefathers did that to a great extent on self-sufficient farms. But, as fruitarians, this is not presently possible. We must get

> our fruits from subtropical sources during the winter season. Of course we can develop and preserve our fruits, especially by drying and secondarily by freezing.
>
> But fruits do not necessarily make us less healthy if they have been grown in other areas. Tropical bananas properly grown furnish no less nutritive benefits if eaten 2,000 miles away from their growing area as if consumed in that area. Nutritive adequacy is the need. Local produce may and may not be nutritively adequate. A good mix of foods from various soils is more likely to give us adequacy.

Aren't whole wheat products good to eat? The first Hygienists advocated whole wheat bread and other products. Graham advocated it so strongly that whole wheat flour came to be known as Graham flour. Why has that changed with Life Science?

> By the end of the nineteenth century Hygienists had already begun to reject wheat as an unwholesome food no matter how eaten. Dr. Densmore and others began advocating an all-fruit diet with some nuts. Humans can't eat wheat raw and, even if cooked, the gluten protein component is almost wholly indigestible.

Article #1: The Paradise Diet by Dr. Herbert M. Shelton

According to an ancient tradition, when man first appeared he lived in a beautiful orchard in which grew fruits of many kinds and all of which were pleasing to the eye and good for food. For an undetermined length of time he lived in this beautiful area of the earth and satisfied his physiological needs by trees.

According to this tradition, he was expelled from the garden and condemned to live upon the green herbs of the field. The indications of this story would seem to be that herbs are a second choice as articles of diet for man. It is common to scoff at this ancient tradition and label it a fairy tale, but it may possess more truth than poetry.

The noted anthropologist Edward B. Taylor, in Vol. I of his *Primitive Culture*, stresses a very important psychological fact in relation to traditions, legends, myths and folklore. Questioning the popular belief that man is possessed of a boundless power of *creative imagination*, he says, "The superficial student, mazed in a crowd of seemingly wild and lawless fancies, which he thinks to have no reason in nature or pattern in the material world, at first concludes them to be new births from the imagination of the poet, the storyteller and the seer." Then he points out that a more detailed study of such things reveals that there is a cause for each fancy, an education that has led to the train of thought, a store of inherited materials from out of which the fancies and thoughts of poet, seer, storyteller, etc., has taken shape. This is to say, the human mind works with the materials it has on hand and does not create something out of nothing.

In this same vein, the author of the article on the myths of Sumer in the Larousse *Encyclopedia of World Mythology* says, "Sumerian mythology drew its material from the permanent principles of Sumerian culture. ...The myth and the form it adopted were a function of the society from which it stemmed. It told of creation in terms of human experience. Its very elements were those at the basis of Sumerian society. ..."

This statement, that the myths of a people mirror the ways of life of the people, if applied to all mythologies, should prove fruitful in their interpretation. It should not be assumed that a people gather their myths and traditions from thin air or that they are purely imaginative creations.

If we can accept as valid the principle that the traditions, legends, myths and folklore of a people are reminiscences of past experiences, that they mirror for us actual conditions through which the people have passed, we are practically forced to accept the ancient and well-nigh universal tradition of paradise as a report, blurred, no doubt, by the passage of time, of a period when the human race resided in some favorable locality and lived upon the "fruits of the trees of the garden." A tradition that antedates the beginning of recorded history and that is possessed by almost all people cannot be lightly cast aside as a figment of the imagination of a poet or of some designing priest-craft.

It is impossible to account for the origin, persistence and widespread existence of a tradition that early man was a frugivore on the basis of the hypothesis now so widely held by anthropologists, that early man was a carnivore and offal eater. Such a being should have left us traditions of swarms of locusts, ponds filled with fish, happy hunting grounds and other rich repositories of their favorite sources of animal foods, with occasional mention of dead elephants or sick horses around which they gathered and feasted. Not fruits, but brutes, not figs, but pigs should be featured in the myths and legends of a carnivore.

It may be objected that tradition and legend constitute a flimsy base upon which to erect a philosophy of human diet. A more scientific basis may be demanded. To this I reply that none of the many *scientific bases* for correct human dietary practices that have thus far been offered possess as much validity as the paradise tradition. The paradise tradition possesses the virtue of being in conformity with the evident dietetic character of man as revealed by comparative anatomy and physiology. It also agrees in principle with the basic eating practices of man throughout history. Man's diet throughout the historic period in all favorable regions of the earth has been predominantly fruitarian.

Many efforts have been made by men and women in the present century to live upon a diet composed exclusively of the fruits of the trees. These efforts have not been without success, but they have rarely been completely successful. From South Africa comes the news—the *Pretoria News*, February 22, 1971—that some research has been done into the effects of an all-fruit diet. Under the headline "Fruit diet worked well," the News summarized the findings of the researchers in the following words: "A team of research workers have come to the conclusion that pure fruit diets now receiving wide publicity cause weight to level off more or less at the 'theoretically ideal' weight for the subject, according to an article in the latest issue of the *South African Medical Journal*."

The item does not indicate the time through which the experiment was carried out but does state that the diet consisted of fruit juices, fruits and nuts. It says "a considerable number of the subjects claimed their physical condition improved while they were on the diet. Some were convinced that their stamina increased and that their ability to undertake strenuous physical tasks and to compete in sports improved."

No doubt, in view of the known nutritive values possessed by tree fruits and nuts, which are also fruits, it is entirely possible to be well and adequately nourished upon such a diet, providing only that one has a sufficient and varied supply of fruits and nuts. If one lives in a climate where the fruit and nut supply is abundant throughout the year, he should have no difficulty in providing himself with adequate nourishment without eating vegetables and without taking animal foods of any kind. Man's expulsion from his primitive paradise was probably due to climatic change that reduced his fruit supply and necessitated his constant search for means of survival.

Commenting upon the African experiment, in the July 1971 issue of *Health For All* (London), Dr. Harry Clements says "It is true that such a diet would be possible in a subtropical climate with its abundance of fruits and nuts, but it would not be so easy in a climate like we have in this country, to maintain an all-the-year-round complete fruit diet on indigenous fruits. Of course, we should bear in mind that a limit is set on food by the use we make of it. There is no doubt that the kind and amount of fruit grown in this country could be vastly increased if we saw the need for it and regarded it as an important part of our diet rather than merely as a trimming to a meal. On the other hand, no climate is better adapted than ours for the growth of vegetables and salads which can play so important a part in proper nutrition."

Dr. Clements further says: "It is interesting to recall that in the latter part of the last century a Natural Food Society existed in this country, its object being stated as follows: 'The Natural Food Society is founded in the belief that the food of primeval man consisted of fruit and nuts of subtropical climes, spontaneously produced; that on these foods man was (and may again become) at least as free from disease as the animals are in a state of nature.' The main contention of this Society was that the starchy foods, especially those made from cereals are 'unnatural and disease-inducing foods and the chief cause of the nervous prostration and broken-down health that abound on all sides.' "

The Natural Food Society to which Dr. Clements refers was organized and spearheaded by Dr. Emmet Densmore and his wife, Helen. This society not only promoted fruitarianism but also propagated Dr. Densmore's no-starch dietary. Dr. and Mrs. Densmore edited and published a magazine devoted to fruitarianism and general Hygienic work. Densmore found that the fruit supply in England was not adequate to meet the nutritive needs of man throughout the whole of the year. After some experimentation, he suggested supplementing the fruit diet with milk and cheese. He even went so far as to endorse the Salisbury meat diet. Because of his frequent shifts of opinion about diet, he gained the reputation of being eccentric. When he returned to America he practically retired from active work in this field. When Mr. Carrington was preparing his work, *Vitality, Fasting and Nutrition*, he attempted to engage Dr. Densmore in correspondence about fasting and feeding, but Densmore declined to lend his services to furthering this work.

Dr. Clements recalls as interesting the fact that in America Dr. John Harvey Kellogg maintained that fruits, with the addition of nuts (which, I should point out, are also fruits), constitute an adequate diet that will sustain human life for its normal lifespan. He mentions what he calls the *therapeutic* use of fruit by Dr. Tilden and by Kellogg. Dr. Kellogg, Cajori and Ragnar Berg demonstrated experimentally the biological adequacy of the proteins of nuts. With the exception of the hickory nut, they all contain an adequacy of amino acids to support growth and reproduction.

In the halcyon days before World War I, a professor in a German university, after much thought and study, concluded that the coconut tree is the tree of life, mentioned in the paradise tradition. Professor Englehart (I have forgotten his first name) lectured and wrote on the subject and finally took a group of German men, women and children to a German possession in the South Sea Islands, where they expected to live exclusively upon a diet of coconuts. According to his accounts, the experiment was proving very satisfactory. He wrote very glowingly upon the success of the coconut diet. Dr. Benedict Lust published an English translation of Professor Englehart's book under the title, *Cocovarianism*. The experiment was brought to an abrupt end by World War I. Professor Englehart and his group of cocovarians were all pacifists and Dr. Lust told me that when the War broke out the Kaiser's government had them all shot. In a world dedicated to war, it is dangerous to be opposed to war.

I do not think that there has been a single period of five-minute duration during my lifetime of seventy-six years that there has not been fighting somewhere in the world. There have been five or six major wars in the world during my lifetime and brush fires innumerable. There may be some connection between man's choice of war as a way of life and his choice of flesh as a diet. In spite of his constant fighting, all the evidence points to the conclusion that man was originally a peaceable being. European man conquered America with considerable ease due to the fact that the original inhabitants of these western continents were, for the most part, peaceable peoples who had not learned the arts of war. Many of the tribes refused to fight, even in self-defense, but permitted themselves to be annihilated and driven westward rather than learn the arts of war. Many so-called primitive people, and not merely those in America, have retained their original peaceable character. War is as foreign to man's original way of life as flesh-eating.

Someday, after we have abolished social systems that breed war, it may be possible for students of the subject to determine whether or not man learned war at the same time he learned to kill and eat animals. The two practices have much in common, although we do find some flesh-eating tribes, such as the Eskimo, who have remained peaceable. Certainly the fruit diet, with its cultivation of fruit, is incompatible with human slaughter.

It is doubtful that the fruit diet can ever be entirely satisfactory in those regions of the earth where long and severe winters prevail. Man must, it seems probable, continue to rely heavily upon herbs and perhaps grains and legumes for a part of his diet. This is not to say that fruits and nuts are not suitable for a cold climate, but that the supply of these foods in cold climates is not sufficiently abundant throughout the whole of the year, and, except for nuts, cannot be stored and kept in adequate quantities to meet the needs of a large population through the winter months. There is no food factor in vegetable and animal products that is not also available in fruits. Cold climates are simply unsuitable to the cultivation of fruits. Some nuts do thrive well in climates that are cold much of the year. Although a nut diet has been advocated, it is doubtful if such a diet would be ideal. The paradise diet would seem to be an ideal one for a paradisiacal climate.

Article #2: The Elements Of Nutrition by Dr. Herbert M. Shelton

Nutrition is the cardinal function of organic evolution and growth. It is the sum of all processes by which raw materials (foodstuffs) are transformed into living structure and prepared for use by the body. It is the appropriation of nutritive material by the plant or animal and its transformation into cell substance and structural units. It is the means by which food is transformed, in the case of plants, into sap, pulp, woody fiber, leaf, flower, fruit and seed, and, in the case of animals, into blood, muscle, bone, nerve and gland.

It is the process by which living organisms develop, grow, repair and maintain themselves, wounds and broken bones are healed, functions are carried on, and reproduction accomplished. It is the process of converting food into cell substance. This occurs in living organisms and nowhere else, and in the case of man, vegetable substances are transformed into human tissues.

Organic existence is perpetual creation (or evolution, if you prefer) and renewal. There is no resting, only continuous activity. Nutrition is the grand process by which creation and renewal are accomplished. Though we can observe the results, we know little of the process.

Let us think of an egg composed of material previously prepared by the nutritive processes of the hen out of which a new bird is to be made: Nutrition is the process by which the simple homogeneous material of the egg is transformed into the complex heterogeneous structures of the bird. But a microscopic speck of the egg, the germ, is alive. It is this germ that begins the work of nutrition by which it grows and becomes two cells, by which the process of cell division is continued and, finally, differentiation, organization and integration are accomplished.

In the seed of the plant a similar process takes place. The germ of the seed is microscopic in size, the remainder of the seed being prepared food. Utilizing the stored food, the plant germ evolves into the complex structure of a young plant. Thus, in the plant as in the animal, nutrition is the process of converting food into cells and organs.

Nutrition is a highly complex process carried on by all living organisms from the smallest, simplest one-celled organism to the most complex organism in nature: man. Food is not nutrition, but the chief material of nutrition. Water, oxygen and sunshine are nutritive materials, while activity, rest, sleep and warmth are vitally important to normal nutritive processes. Vital structures and functional products can be created only out of food, but it is the process of nutrition that builds and maintains organic structure.

Viewing the whole domain of live-vegetable and animal-nutrition is the fountain out of which flow structure, function, capacity, strength, growth, development and reproduction. It is the process of

building, repairing and vitalizing organs and organisms. All structure is made by processes of nutrition; all repairs are accomplished by nutrition; it is through nutrition that we come to have organs in the first place; it is only through nutrition that they are constantly repaired; it is through it that we come into being and maintain life.

The tissues of man are woven on a loom that no Eastern rug designers or Western carpet machinery can rival.

Where strength is needed, an iron-like power of resistance is given to man's tissues, though these strands of fiber are finer than spider's thread. Yet where elasticity is required, the fibers rival rubber in flexibility.

The size and development of a man's muscles and the strength and functioning power of his nerves are the products of nutrition. Even his brain is a product of this process. The human infant, like the bird in the egg, starting as a single cell, grows organs and other parts by the process of nutrition, deriving its food supply, water and oxygen from its mother's blood. After birth, utilizing food, it develops and grows to maturity by processes of nutrition. Reproduction, which is merely discontinuous evolution and growth, is achieved by the process of nutrition.

The digestive system should not be thought of as the nutritive system. The respiratory system supplies the organism with needed oxygen. If it is cut off, even for a very few minutes, the whole nutritive process comes to a halt and cannot be started again.

In man and other higher animals, the many and varied functions contributing to the grand overall process of nutrition are, to a great extent, each performed by a separate organ. In the human system there are a large number and variety of organs, each of which fills a peculiar and appropriate function. In the human sphere the viscera may be regarded as a tree, the digestive system of which represents the roots, the lungs, the leaves, the blood and lymph, the sap. Given the organic structure that circulates the juices, choosing the best food and refining it, we finally arrive at human structure.

As we are primarily interested in human nutrition, I shall attempt to picture in broad outlines by use of the following diagram, the means by which the body appropriates its foods:

Substances Appropriated	**Ways of Appropriation**	**Results of Appropriation**
Food	Locomotion	Development
Air (oxygen)	Prehension	Growth
Water	Mastication	Repair
Sunshine	Deglutition	Maintenance
	Digestion	Healing
	Absorption	Reproduction
	Respiration	
	Circulation	

	Assimilation	

The organs and secretions involved in this work of appropriation and the preparation of raw materials for use are: hands, teeth, tongue, salivary glands, esophagus, stomach, gastric glands, small intestines, intestinal secretions, pancreas, pancreatic juice, liver, bile, villi, lacteals, lymphatic system, heart and vascular system, the several ductless glands and their hormones, the nose, bronchioles, lungs, diaphragm, chest walls, long bones and skin.

The long bones, in which the red blood cells are formed may be properly regarded as part of the body's nutritive system. Millions of these cells are formed daily and are essential in removing oxygen from the lungs to the body's cells, then carrying carbon dioxide from these cells to the lungs. Without this process in the bones, oxygen could not reach the other bodily cells.

Because the skin is the channel through which we receive the sun's rays and regulate their uses, this investing membrane may be properly included in the body's nutritive system.

It will thus be seen that in the higher animals, especially in man, a great number and variety of organs and organ-systems and their functions are subservient to the overall process of nutrition, and all of them converge towards a common center.

Certain functions like digestion, circulation and respiration are common to all types of animals, who must receive, elaborate and circulate the materials necessary to build and sustain their tissues. Locomotion and prehension are essential parts of the nutritional process in most animals. Locomotion is denied to some forms of animal life, and these depend upon water and waves to bring their food supplies to them.

In the final analysis, the whole body is engaged in carrying on the process of nutrition, every part contributing to the whole and no part selfishly assimilating alone. Some parts, however, are more involved than others, especially in the preparatory work. Reciprocity and mutual service characterize the work of the bodily organs. The lungs take in oxygen for the whole body and not for themselves alone; the stomach digest food for the entire organism and not merely for its own food needs; the heart receives and circulates the blood throughout the body, not merely through its own tissues. The living organism is a model of cooperation.

The production of food is a reciprocal process, plants and animals being co-equal partners in the vital synthesis. For this the forests and their myriad inhabitants have been industriously working since the beginning of life on our globe; for this the flowers have been working since they were self-sown from the miraculous garden; for this the bees and birds and wind have been pollinating flowers since the beginning of organic existence; for this the birds and mammals have scattered seed. From time immemorial, for this the soil bacteria and earthworms have labored incessantly throughout uncounted ages; for this the un-cropped earth has rested in the balmiest latitudes, while the great sun, supporter of all life, has poured her tropical spirit upon its unexhausted islands, so that spring, summer and autumn provide us with an abundant supply of tasty green leaves, delicious fruits packed with food values and baited with delightful aromas, delicate flavors and pleasing colors, and with tasty, life-sustaining seed.

Not in the animal alone is assimilation in progress. The plant is the prime assimilator, absorbing the minerals of the soil and the nitrogen and carbon of the air, the fertile soil being the great storehouse of plant food and the source of their many aromas and flavors. The animal returns the soil's fare, as fertilizer and carbon dioxide, to the original storehouse from which it was taken. In the great workshop of nature we witness progressive assimilation and refinement: The pioneer plants prepare the primitive soil for the advent of the higher plants; the higher plants refine and synthesize food for the animals above; these, in turn, compensate the plants in a variety of services for the goods received.

Through every change, by secret processes, the surface of the planet is steadily fitted for a greater edifice of society. All things normally work together for the good of the whole. Even the wrathful violators of her fundamental law of reciprocity serve her ends.

The mineral kingdom supports the plant kingdom, which in turn supports everything above it. Living plants arise—rich, delicate and lovely from the ground—created from a few simple elements. Through the subtle alchemy of life, disintegrated rock becomes stems and leaves, flowers and seeds with power to reproduce themselves. In the plant this amounts to taking the lifeless materials of air, water and soil and raising them to the status of living structure.

The animal appropriates parts of the plant and transforms them, by the subtle alchemy of animal nutrition, into sentient flesh and blood. As a result of processes of living plants and animals (assisted in the initial stages by bacteria), which we call collectively nutrition, sentient flesh is made from what otherwise would remain inert stone. The oxygen, nitrogen and carbon of the air plus the minerals of the soil are passed through the leaves and trunks of herbs, trees and other growing things. Each enriches its tissues through a division of labor and succession of touches at least as great as the processes employed in the laboratory in the manufacture of synthetic products.

Animals cannot appropriate the raw materials of the soil and air, except for oxygen and water. They cannot utilize the carbon and nitrogen of the air but must receive carbon (carbohydrates) and nitrogen (proteins) from the primary producers: the plants. These elements must be refined and synthesized by the plant and transformed into substances that the animal can appropriate. The earth might as well be bare granite and the atmosphere untinted gas if the vegetable kingdom lacked organic qualities to bestow upon the animal in the foods it turns out in great profusion.

The assumption that plants do not impart to the elements of the air and to water and soil, qualities that they do not possess in their gaseous and mineral states, is a form of ungratefulness in the inhabitants of any land whose fields are laden with fragrance and savoriness each year.

Plants, like factories, feed us and clothe us; they spin out our cotton in their looms and turn out their fruits and juices in profusion. Whether it be fruit and flavor for our bodies, or beauty and symbolism for our minds, plants support us. They yield up their substances to be transformed into new substances by us.

Thus, in the normal course of the nutritive processes of nature, vegetables draw their sap from the underground, from the dark scurf of the mineral kingdom; whereas, the animal takes its nutrient juices from among the children of the air, light and motion, from the succulent tops and fruits of the vegetable kingdom, from the results of an elaborate predigestion in the bosom of the earth and sun-kissed leaves of the plant.

By the marvelous processes of plant nutrition, lifeless matter drawn from air, water and soil has been raised to the status of living structure. Undergoing further refinements, transformations and organization in the animal, it is raised to the status of dynamic structure. The inert and unorganized is now highly organized and alive. The breath of life has been breathed into the structure and it has become a living soul. Such is the marvelous end-result of plant and animal nutrition.

Article #3: Nutrition, A Hygienic Perspective by Ralph C. Cinque, D.C.

The following article by Dr. Ralph Cinque is reprinted from Dr. Shelton 's Hygienic Review.

Nutrition has become a popular subject, indeed, a fad. Never before have people been so concerned about being well nourished. The barrage of information that is being promulgated in books, magazines, newspapers, talk shows, etc., about food and nutrients is, of course, commercially motivated.

Consequently, the knowledge that most people have about nutrition is a mixture of facts, half-truths, exaggerations and outright fallacies.

Our purpose in this writing is not to discuss all of the intricacies of nutrition. The reader is referred to any of the standard texts on the subject for his information. Instead, our objective will be to investigate nutrition from a Hygenic viewpoint. We want to consider nutrition not as a sequence of chemical reactions but, rather, as a process of life. We want to put aside, for the time being, the specific role of various vitamins and minerals and consider the overall process by which the body attains nourishment.

Strictly speaking, nutrition refers to the processes by which the cells of the body utilize the components of foods. Nutrition does not refer to the processes by which food is eaten, digested, absorbed, transported and circulated. Nor do all of the changes that the components of food undergo metabolically constitute nutrition. Glycogenesis, for example, the process by which the liver and muscle cells convert glucose into glycogen, removes glucose from the circulation and makes it unavailable to the cells. Therefore, it must be regarded not as a nutritional process but rather as a process of food storage. Only those processes by which the cells oxidize foodstuffs for chemical energy or utilize substances to manufacture cellular constituents and secretions can be considered nutritional. All of the processes that precede the actual utilization of nutrients by the cells must, therefore, be considered as antecedents to nutrition. They make nutrition possible. They must occur in order to make nutrients available to the cells. They are vitally important, but they do not constitute nutrition.

Nutrition takes place at a cellular level. It results from the diffusion and active transport of nutrients from the tissue fluid that bathes the cells into the cellular protoplasm. At this point, nutrition begins. It is only here that the body derives any real use from the food eaten. Up to this point, there has only been an expenditure of energy in processing and transporting food in preparation for cellular assimilation. But, at the cellular level, there is finally a compensation for the physiological work done previously in relation to food.

Nutrition is not something that we can directly influence. We cannot force it to happen. If the organs of the body effectively perform their roles in relation to food, then, and only then, will optimal nutrition occur. All that we can do is supply an adequate amount of high quality food under favorable conditions. The rest depends upon what the body does with it. We do not nourish the body; the body nourishes itself. No one is a nutritionist; the body is the only nutritionist because only the body itself can accomplish nutrition.

If we recognize that nutrition takes place at a cellular level and that an elaborate and complicated sequence of events must occur beforehand, it should be obvious that the quality of physiological performance is as vitally important as the quality of food eaten. If nutrition is a distant link on a long physiological chain, a break at any point in that chain will suspend nutrition, partially or totally. Hygienists are well aware that food is of no value until it is digested and absorbed. For example, consider the diabetic, who may be fully capable of digesting, absorbing, transporting and even generating sugar from internal sources. In the absence of insulin, the active transport of sugar is impeded, and, as a result, the abundant supply of sugar is unavailable to the cells. The infant with phenylketonuria (PKU) lacks a specific metabolic enzyme that catalyzes the conversion of phenylalanine into tryosine, and consequently tremendous amounts of phenylalanine and its by-products accumulate in the blood. These disrupt body chemistry and may bring about mental retardation.

Obviously, interference at any point on the physiological assembly line can thwart the final outcome and defeat the ultimate objective, which, of course, is nutrition. Therefore, what can we think of a "nutritionist" who decides that a protein deficiency exists and has the patient take some protein powder dissolved in water every day in order to enhance nutrition? This kind of "shotgun approach" does nothing to enhance nutrition. On the contrary, it disrupts nutrition by adding one more enervating influence to the life of the individual, an influence that stresses various organ functions and biochemical processes.

Our task is not just to provide nutrients but to provide them in a gentle manner that maximize the

efficiency of our organic functioning in order to promote the most effective utilization of food. The manner in which we eat, the conditions that prevail at the time of the meal, the state the food is in and the way in which it is prepared, the abundance of nerve energy, the presence of hunger—these factors have as profound an effect upon nutrition as nutrients, per se. We cannot emphasize too strongly that it is not what we eat, but what we appropriate at a cellular level that determines the state of our nutrition.

Therefore, as Hygienists we must recognize that nutrition involves a great deal more than food, that every aspect of our lives affects the state of our nutrition. This would include the manner in which we eat, sleep, exercise, emote, rest, think, etc. Those who ingest large quantities of extracted and concentrated nutrients have a very distorted view of nutrition and show a lack of understanding of the biological facts of life.

Now that we have defined nutrition, we shall discuss its nature and characteristics. We have already stated that the cells of the body are bathed in tissue fluid and that it is from the tissue fluid that they extract nutrients. The cells also exrete their wastes into the tissue fluid. So there is a constant movement of materials across the cell membranes in both directions. This movement is a continuous, fluid and constant process. It is not sudden. It does not occur in starts and stops. It is happening all the time, at mealtime and between meals, during the day when we are active and at night when we are sleeping. It speeds up under some conditions and at other times slows down, but it never stops. It is completely controlled, determined and regulated by the body.

The body is like a food store with a large cold storage room in back. As the consumers remove items from the shelves, the owner replenishes the shelves with wares from the storeroom. The owner may also be receiving a delivery of fresh goods daily, but these are used to replenish his reserves in back and not to stock his shelves directly. The food that he makes directly available to his customers comes from his storage room, so that if by chance a delivery fails to arrive one day it will have little or no effect upon the availability and selection of foods in his store. His own reserves are more than ample to supply his needs for several days.

A similar situation exists within the body. The body is constantly drawing upon its reserves to maintain the chemical constancy of its tissue fluids so that at no time are the cells subject to being depleted. The body is not directly dependent upon raw materials to accomplish nutrition because it is constantly living upon its reserves. Eating replenishes these reserves. The body is much less dependent on food than most people think.

The common notion is that the only thing that maintains normal blood sugar levels is the frequent ingestion of food. The tremendous magnitude of the body's ability to make sugar available from glycogen and certain amino acids, and its capacity to rely more heavily on fat combustion, if necessary, is often overlooked. Most hypoglycemics think that the distress that they experience between meals is the result of an inherent need for infrequent meals. They fail to recognize that their symptoms are manifestations of impaired organ functioning, enervation and toxemia. What they require is not more food, but more rest.

It is a well-known fact of physiology that stored food within the body is in a constant state of flux. Fat stored within fat cells, for example, is constantly being consumed and replenished. Obese individuals with vast midrift bulges think that they have been living with the same fat for years. They don't realize that they have been continually using and replenishing their fat, and that this year's fat is entirely different from last year's fat.

If the body is not directly dependent upon meals to accomplish nutrition, what affect does eating a meal have on nutritional processes? We have already stated that the availability of nutrients depends upon the composition of the tissue fluid and that tissue fluid is a filtrate of the blood. Therefore, the composition of the blood and tissue fluid must remain constant in order for the fluidity of nutritional processes to be undisturbed. When we ingest a meal, the products of the meal are obviously markedly different from the composition of the blood. The body constantly seeks to nullify change in its blood chemistry as a result of the ingestion of a meal.

Converting excess glucose into glycogen and gradually releasing it into the bloodstream in response to the body's constantly fluctuating needs for sugar is one way in which the liver "buffers" the effects of eating a meal. Taking a large quantity of Vitamin C may temporarily achieve "super-saturation," but the body will immediately go about excreting the excess and re-establishing normal tissue levels of ascorbic acid. This requires usually no more than several hours. The liver also removes excess carotene (provitamin A) from the blood and stores it, but, as we all know, people have varying capacities to do this. Some turn orange after one glass of carrot juice, while others car drink a quart at a time without a noticeable affect. All of the food materials that are absorbed into the blood are first transported via the portal circulation to the liver where they are processed before entering the general circulation. The body seeks to minimize the impact at a cellular level that would otherwise occur from eating food.

Quoting Ian Fowler from his excellent article, "Fundamentals of Feeding" which appeared in Dr. Shelton's *Hygienic Review* in June 1978, "Consuming extracted and artificially concentrated items results in a sudden influx of nutrients which necessitates rapid accommodation and adjustment of blood nutrient levels, of liver metabolism, adrenal, pancreatic functions, and so forth. This is debilitating, inefficient, wasteful and enervating." This profound and explicitly stated fact of physiology will never be taught by vitamin manufacturers, health food store owners, "metabolic nutritionists," or "orthomolecular psychiatrists." All they will ever teach people is how wonderful calcium is and how much Vitamin X the body needs. The fact that taking their products exerts a tremendous stress upon the body, that it is a shock to the system to be suddenly overwhelmed with "megadoses" of vitamins, that taking unnaturally concentrated nutrients tends to disrupt and not enhance nutrition, is not the kind of knowledge that promotes vitamin sales. Even eating whole natural food constitutes a slight stress that requires internal adjustments to restore homeostatis. Why magnify this stress by consuming large quantities of concentrated nutrients? Nutrition is not a matter of violently battering, dosing, saturating or treating the body with nutrients. "Nutritional intensity" is not our objective. Our objective is to gently supply needs. Let the body establish its own blood levels of Vitamin C, calcium, etc. Eat a simple diet of whole natural foods with a preponderance of raw, succulent high-fiber foods. This will minimize the rate at which nutrients are introduced into the blood and thereby minimize what Dr. Alex Burton, a well-known Hygienic practitioner in Australia, refers to as "nutritional shock." Why not make the process of appropriating nutrients as easy as possible for the body? Why not harmonize with the body's internal processes instead of trying to thwart them?

We might also consider that when we consume isolated nutrients, we offset rations of various nutrients and that this constitutes an additional stress. It is known, for example, that the body requires ten times as much niacin as it does thiamine or riboflavin. Therefore, when we consume a large quantity of extracted thiamine, we produce a relative deficiency of niacin. We should note that the proportion of various nutrients in natural foods parallels the body's needs for different nutrients. Natural foods contain many times more niacin than thiamine, which is in keeping with the body's needs.

Other important nutrient ratios include: sodium/potassium, calcium/phosphorus, iron/copper, Vitamin E/ selenium, zinc/molybdenum and Vitamin C/bio-flavinoids. The proportion of these nutrients within natural foods accurately reflects the body's needs; thus, the greatest synergy of nutrient utilization is achieved. The body requires many times more potassium than sodium, and this is exactly what we find in natural foods. Processed foods that are loaded with sodium disrupt the delicate balance between these two mineral elements that exists at the neuronal membrane, thereby impairing the function of the nerves. Diets that introduce excessive amounts of phosphorus into the system may produce a relative deficiency of calcium even though an adequate amount of calcium may be consumed. A deficiency of copper prevents a thorough utilization of iron.

The important point to realize is that nutrients are utilized in concert and that it is the total ensemble of the diet that determines the state of our nutrition. Consuming isolated nutrients is more likely to do harm than good. This is true even in relation to proteins and amino acids. It is now known that the body has a limited tolerance for sulphur-containing amino acids and that excesses can be very taxing on the liver. Plant proteins, which contain a lesser proportion of methionine and other sulphur-containing amino

acids than do animal foods, are not only less burdensome on the liver but they more accurately supply the body with the proportion of amino acids that it was designed to process.

Understanding the physiology of nutrition will quickly dispel misconceptions that exist about the role of foods. One common misconception is that foods (or nutrients) have specific effects on different organs and tissues. "Vitamins for the hair" are a popular drugstore item, and glandular extracts that supposedly "feed" specific organs are peddled by practitioners of all the various so-called "schools of healing."

If we consider that the cells obtain nourishment from the tissue fluid and that tissue fluid is a filtrate of the blood, then it should be obvious that all of the different organs and tissues are on a mono-diet of blood. The blood supplied to the kidney is virtually the same as the blood supplied to the big toe, which is identical to the blood supplied to the left elbow. The cells are capable of extracting from the tissue fluid (hence, the blood) nutrients in the proportion that they require, but all of the cells are fed from the same table. The differences that exist in the chemical composition of different tissues come about as a result of active processes of the cells themselves in selecting the nutrients that they require. It does not result from any assumed differences in their food supply. Therefore, eating fish because it is "brain food" or taking adrenal gland extract because "it has the exact proportion of nutrients required to rebuild the adrenal gland" flaunts ignorance of the most fundamental laws of physiology. Health food notions that "beet juice is good for the kidneys," or "wheat grass juice cleans out the liver," are equally as ridiculous. All a food or juice can possibly do is contribute to the blood nutrient pool. It can not have specific effects on specific organs. Remember also what was mentioned earlier, that the body constantly seeks to nullify any changes in its blood chemistry as the result of the ingestion of a meal. The rationale of "nutritional therapy' is as much a fantasy as the rationale of any other form of therapeutics. Foods do not act on the body. The body acts upon foods. Nutrients do not act on the body or perform roles within the body; they are used by the body. The body itself is the only active agent in nutrition.

Nutrition is an autonomic function, that is, it takes place below the conscious level. Just as digestion, absorption, circulation, glandular secretion and other autonomic functions take place without conscious perception or awareness, so also do the processes of nutrition (at a cellular level) occur without our direction or participation. Everyone will admit that stomach function will only produce symptoms when it is impaired. No one will deny that under ideal conditions we are totally unaware of the functions of our livers, intestines, etc. These are autonomic functions and they do not produce symptoms.

Nutrition is the same way. It is an autonomic function. Just as the digestion of food does not produce symptoms, the appropriation of nutrients, internally, should not produce symptoms. However, when digestion is disrupted symptoms arise and, likewise, when nutrition is disrupted symptoms arise. Russell Thacker Trail stated in 1871 that "Pure and perfect nutrition implies the assimilation of nutriment material to the structure of the body, without the least excitement, disturbance or impression of any kind that can be properly called stimulating." Here is a profound statement to come from a man who lived over 100 years ago, before the explosion of knowledge about nutrition and biochemistry began at the turn of the century. Yet he realized then what few people realize today, that any specific effects that occur from the ingestion of foods or nutrients are the results of stress and irritation and are not the result of an enhancement of nutrition. If a person is manifesting the symptoms of a cold, and taking vitamin C aborts those symptoms, this effect can no more be regarded as nutritional than can the effects of taking aspirin. The vitamin C is having a pharmacological effect (that is, a drug effect), not a nutritional effect. If a woman has severe menstrual cramps and taking dolomite relieves her symptoms, it is foolish to think that a need for calcium has been satisfied. The calcium is exerting a pharmacological effect. Crude calcium was one of the first drugs used as an anesthetic in surgery because it impairs the conduction of nervous impulses and thereby reduces sensibility. To call this nutrition is a shame, a travesty, an outright lie. Any food or nutrient that "suddenly gives you pep," "makes you feel warm all over," "cures your headache," "helps you sleep" or has any other specific effect should be avoided like the plague. It is obviously irritating, disrupting and enervating.